The Forest Inventory and Analysis Database: Database Description and Users Manual Version 1.0

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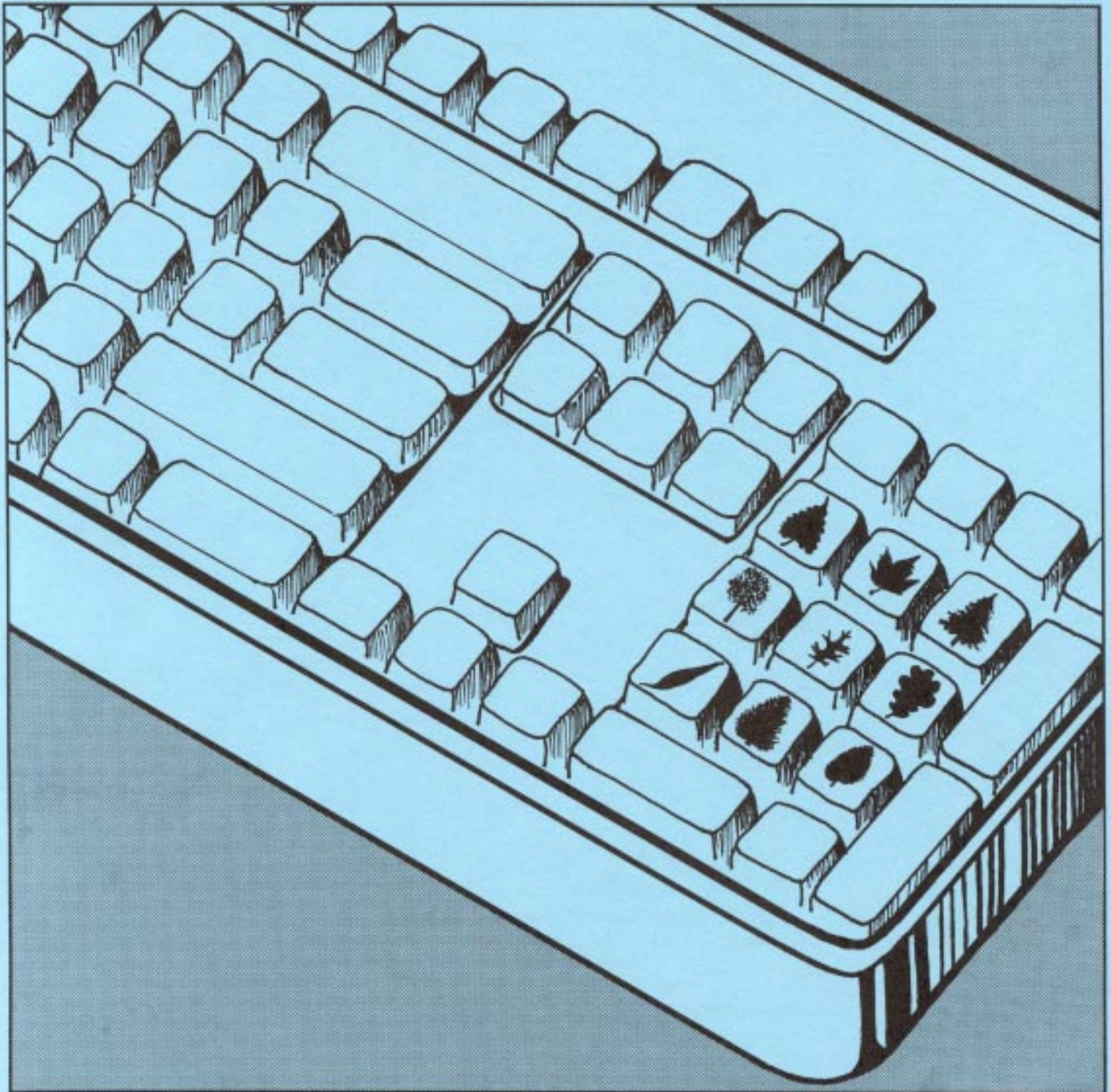
FOREWORD

Forest Inventory and Analysis (FIA) is a continuing endeavor mandated by Congress in the Forest and Rangeland Renewable Resources Planning Act of 1974 and the McSweeney-McNary Forest Research Act of 1928. FIA's primary objective is to determine the extent, condition, volume, growth, and depletions of timber on the Nation's forest land. Before 1999, all inventories were conducted on a periodic basis. With the passage of the 1998 Farm Bill, FIA is required to collect data on 20 percent of the plots annually within each State. This kind of up-to-date information is essential to frame realistic forest policies and programs. USDA Forest Service regional research stations are responsible for conducting these inventories and publishing summary reports for individual States.

In addition to published reports, the Forest Service can also provide portions of the data collected in each inventory to those interested in further analysis. This report describes a standard format in which data can be obtained. This standard format, referred to as the Forest Inventory and Analysis Database (FIADB) structure, was developed to provide users with as much data as possible in a consistent manner among States. FIADB files can be obtained for any State inventory conducted after 1988 (Eastern U.S.) or 1994 (Western U.S.). Files for many State inventories conducted before this time may also be available; however, some data fields may be empty or the items may have been collected or computed differently. Inventories begun after 1997 use a common plot design nationwide, resulting in greater consistency among FIA units than earlier inventories. Data field definitions note inconsistencies caused by different sampling designs.

ACKNOWLEDGMENTS

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THE FIA DATABASE

This manual describes a database that has a uniform data structure for FIA inventories nationwide. Its creation is part of an ongoing effort by FIA to produce consistent inventory data and summaries nationwide. Specifically, the intent is to provide data to:

1) Produce standard FIA tables of timber resource statistics (see Appendix B),
2) Meet Resource Planning Act Assessment data requirements,
3) Provide users with a common source for integrated FIA plot and tree data, and
4) Estimate changes in forest land area and timber volume between successive FIA inventories.

The FIA Database (FIADB) replaces two FIA regional databases, one for the Eastern States (Eastwide database) and the other for the Western States (Westwide database), which are documented in separate manuals (Hansen *et al.* 1992, Woudenberg and Farrenkopf 1995). A new national plot design provided the impetus for replacing these two databases. FIA units adopted this design in all State inventories initiated after 1997. An overview of the design is presented in Chapter 2.

Although specifically intended to store data collected with the new design, the FIADB also stores data from FIA inventories completed before the adoption of the national plot design. These older inventories are always included in the database if they are the most recently completed inventory in a State. Optionally, FIA units may include data from other older inventories. The level of data consistency among these older inventories varies depending on when, where, and how the data were collected and compiled. Generally, notes are provided in Chapter 3 indicating when a data element differs among FIA units or between successive inventories. We have also noted when differences occur between these older inventories and those conducted using the new national plot design. We recommend that users contact the FIA unit that produced any of these older inventories for additional details.

The database contains extensive data on forest area attributes and on the status of live and standing dead trees. However, it does not include all data collected and compiled by FIA units. In particular, data on dead and down trees, understory (non-tree) vegetation, and many abiotic attributes are not included. Users should contact individual FIA units to see if these data are available.

Users needing estimates of change in seedling density, forest land area, or timberland volume should note the following cautions. Tree lists contained in this database may be significantly truncated on plots that sample very young stands predominantly stocked with seedlings (trees less than 1 inch at the point of diameter measure). Seedlings often are tallied in FIA inventories only to the extent necessary to determine if some minimum number of them are present, which means that seedlings are often underreported. The database is not designed to provide valid estimates of change in forest land area between successive inventories that predate the new national plot design. Computations of various components of volume change should carefully mimic the examples given in Chapter 4.

Data for individual States are available through the Internet at: http://www.fs.fed.us. This is the Internet address for the Forest Service's National Headquarters and should remain unchanged for the immediate future. From this page, users should follow the links to "Programs & Staffs," "Research & Development," "Headquarters R&D Staffs," "Forest Inventory and Analysis," and finally "Online databases." Users accessing the FIA Web site can either download the data as comma-delimited files in FIADB format or use a Web-based program to generate their own customized reports.

Chapter 2 describes FIA sampling and estimation procedures and Chapter 3 provides detailed documentation of the database. Chapter 4 presents algorithms on how to compute estimates of area; current timber volume; biomass; number of trees; and annual timber volume growth, mortality, and removals.

FIA SAMPLING AND ESTIMATION PROCEDURES

To understand the types of data available, FIADB users need a basic understanding of FIA sampling and estimation procedures. A general discussion of these sampling procedures follows. Before the new common sampling design, specific sampling methods varied among FIA units and even among States within an FIA unit. Users who require additional information about sampling procedures for a specific State should contact the group responsible for that State's inventory. As new inventories are completed, the common sampling design being implemented will produce greater consistency in the compiled data.

Remote Sensing

Each State inventory begins with the interpretation of a remotely sensed sample that classifies the land by various remote sensing classes. The total area of a sample comes from outside sources (usually Bureau of Census reports). The remote sensing classifications are based on land use (such as pasture, cropland, urban). For forested land, more detailed classes are sometimes defined based on criteria such as forest type, volume per acre, stand size, stand density, ownership, and/or stand age. Then, ground plots are measured to adjust the remote sensing sample for changes since its acquisition date and to correct any misclassification. Ground plots also provide estimates that cannot be made from a remotely sensed sample. The remote sensing classification of these ground plots, together with the area estimates from the remote sensing sample, is used to assign area expansion factors to all ground plots. These area expansion factors are used to weigh plot-level estimates when computing estimates for selected strata of the population. Selection criteria for remote sensing classes and computation of area expansion factors differ from State to State. Users interested in the details of how these expansion factors were assigned to the ground plots for a particular State should contact the appropriate FIA unit.

Ground Sampling

FIA plots are designed to cover a 1-acre sample area; however, not all trees on the acre are measured. Recent inventories use a national standard, fixed-radius plot layout for sample tree selection. Various arrangements of fixed-radius and variable-radius (prism) subplots were used to select sample trees to measure in older inventories. Ground plots may be new plots that have never been measured, or remeasurement plots that were measured during a previous inventory. For all plots, several observations are recorded for each sample tree, including its diameter, species, and other measurements that enable the prediction of the tree's volume, growth rate, and quality. These tree measurements form the basis of the data on the tree records in the FIADB.

Some of the data items in the FIADB come directly from field measurements; others are computed from tree measurements. Net cubic-foot volume is a computed item. Each FIA unit uses a volume equation to compute this volume based on diameter, taken either at breast height (DBH) or root collar (DRC), and other tree and/or stand attributes. Although equations vary from State to State, they were all designed to estimate the same volume.

One important computed item is the tree expansion factor. This item expresses the number of trees per acre that each sampled tree represents in the current inventory. It is the inverse of the size of the plot the tree was sampled on. For example, if the plot design samples trees under 5 inches DBH on a single fixed-radius plot covering 1/100th acre, this item would have the value of 100 trees per acre for a tree less than 5 inches DBH. If trees 5 inches DBH and larger are sampled with ten 37.5 BAF (English) prism points, as was common with FIA plots in the Eastern U.S., the expansion factor would depend on the DBH of the tree. Under such a sample, a 14.0-inch tree

would have an expansion factor of 3.51 trees per acre, again the inverse of the plot size[1].

A national plot design was adopted in the mid-1990's. Now all FIA units have implemented a common sampling design consisting of four 24.0-foot radius subplots (approximately 1/24th acre) for trees at least 5 inches in diameter and four 6.8-foot radius microplots (approximately 1/300th acre) for smaller trees. Therefore, tree expansion factors are approximately 6 for trees at least 5 inches in diameter and approximately 75 for the smaller trees. Subplot 1 is the center of the cluster with the other three subplots located 120 feet away at azimuths of 360°, 120°, and 240°, respectively. Another characteristic of the new design is the mapping of differing forest conditions. Forest type, stand-size class, stand density, stand origin, owner group, and reserve status define a condition. If two or more conditions occur within a plot, the boundary between them is mapped and the proportion of the plot in each condition is recorded.

The items in the COND table are estimates of average attributes for the portion of the plot in that condition. Previous inventories did not map conditions. Instead, some attributes were assigned the value determined for the plot center, or subplots were shifted so that they fell within the same stand as the plot center.

Computed expansion factors are needed to estimate growth, mortality, and removals. Growth can be estimated by measuring the tree at two times, by measuring growth rings on an increment core, or by using a model. The method used, along with the sampling design, determines the value for the expansion factors needed to compute growth. Mortality can also be estimated from remeasured or new plots. With inventories that have remeasurement plots, mortality is based on trees that die during the remeasurement period. In cases where new plots provide estimates of mortality, mortality is estimated from either a mortality prediction equation that predicts the probability that a tree will die over some time period, or from a field estimate of mortality based on the

measurement of dead trees and an estimate of when they died. Depending on the inventory design, removals may be estimated from observations of trees cut on either new or remeasured plots.

We have tried with the FIADB to provide as consistent data as possible from one State to another. Therefore, although differences in field and estimation procedures do exist among States, the data in the FIADB for different States are compatible. Differences that do exist are minor and should have little or no impact on most uses of these data. Consistency will increase as inventories incorporating the new common sampling design are completed.

Accuracy Standards

Forest inventory plans are designed to meet sampling error standards for area, volume, growth, and removals provided in the Forest Service Handbook (FSH 4809.11). These standards, along with other guidelines, are aimed at obtaining comprehensive and comparable information on timber resources for all parts of the country. FIA inventories are commonly designed to meet the specified sampling errors at the State level at the 67 percent confidence limit (one standard error). The Forest Service Handbook mandates that the sampling error for area cannot exceed 3 percent error per 1 million acres of timberland. Five percent (Eastern U.S.) or 10 percent (Western U.S.) error per 1 billion cubic feet of growing stock on timberland is applied to volume, removals, and net annual growth. Unlike the mandated sampling error for area, sampling errors for volume, removals, and growth are only targets.

FIA inventories are extensive inventories that provide reliable estimates for large sampling areas. As data are subdivided into smaller and smaller areas, such as a geographic unit or a county, the sampling errors increase and the reliability of the estimates goes down. For example, a State with 5 million acres of timberland would have a maximum allowable sampling error of 1.3 percent (3% x $(1,000,000)^{.5}$/ $(5,000,000)^{.5}$), a geographic unit within that State with 1 million acres of timberland would have a 3.0 percent maximum allowable sampling error (3% x $(1,000,000)^{.5}$ / $(1,000,000)^{.5}$), and a county within that State with 100 thousand acres would have a 9.5 percent maximum allowable sampling error (3% x $(1,000,000)^{.5}$/ $(100,000)^{.5}$) at the 67 percent confidence level.

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[1] *The plot size of a 14.0-inch tree on a single 37.5 BAF (English) prism plot would be:*
(14.0 inches² x π)/(37.5 ft²/acre x 2² x 12 inches²/ 1 ft²) = 0.0285 acres. The plot size of this tree on a 10 point cluster would be 10 times this or 0.285 acres, producing an expansion factor of 3.51.

DATABASE STRUCTURE

The FIA Database is a relational database structured for the Oracle Database Management System. By the nature of the way FIA data are collected and compiled, these Oracle tables are hierarchical. This structure makes it easy to produce flat files for customers who do not have access to, or the capability of, database management on their computer system.

There are nine tables in the FIA Database (SURVEY, COUNTY, PLOT, SUBPLOT, COND (condition), TREE, SEEDLING, SITETREE, and BOUNDARY). The SURVEY table provides information on where and when inventories were conducted. The COUNTY table is merely a lookup table for the county and unit names. The other seven tables closely reflect the manner in which data are collected on a field plot. A row in the PLOT table provides infor-mation relevant to the entire 1-acre plot. A row in the SUBPLOT table describes the features of a single subplot. A row in the COND table provides information on the discrete combina-tion of landscape attributes that define the condition (a condition will have the same land use, reserved status, ownership, forest type, stand-size class, stand origin, and stand density). A row in the TREE table is used to describe each tree over 1 inch in diameter found on a subplot. A row in the SEEDLING table provides a count of the number of trees of a species found on a subplot that are less than 1 inch in diameter but at least 6 inches in length for conifer species or at least 12 inches in length for hardwood species. A row in the SITETREE table provides information on one of the site trees collected to provide site index information for a condition. A row in the BOUNDARY table provides an approximate description of the demarcation line between two conditions that occur on a single subplot.

For each column or variable in a table, there is a section that describes the unabbreviated name and detailed description of the variable. Coded items also include a list of the codes and their meanings.

Users need to exercise caution when summa-rizing numeric variables with special values (usually a -1) assigned to designate missing values. For example, computing averages of elevation, site index, or total height without accounting for those entries coded as -1 will give erroneous results.

Survey Table (Oracle table name is SURVEY)

	Column name	Oracle data type	Value or unit of measure	Key data item
1.	TABLENM	VARCHAR2 (8)	SURVEY	
2.	STATECD	NUMBER (4)	Coded	X
3.	CYCLE	NUMBER (2)	Number	X
4.	SUBCYCLE	NUMBER (2)	Number	X
5.	STATEAB	VARCHAR2 (2)	Name	
6.	STATENM	VARCHAR2 (28)	Name	
7.	INVYR	NUMBER (4)	Year (YYYY)	
8.	MODDATE	NUMBER (8)	Month-Day-Year (MMDDYYYY)	
9.	CENSUSYR	NUMBER (4)	Year (YYYY)	
10.	NFSYR	NUMBER (4)	Year (YYYY)	
11.	RSCD	NUMBER (2)	Coded	
12.	NUMPANEL	NUMBER (2)	Number	
13.	NOTES	VARCHAR2 (2000)	Character	

1. TABLENM   Table name. Identifies the table to which the record belongs.

2. STATECD   State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. CYCLE   Inventory cycle number. For example, a 4 shows the data came from the fourth inventory of that State. A cycle number greater than 1 does not necessarily mean that information for previous cycles resides in the database.

4. SUBCYCLE   Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle shows in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. STATEAB   State abbreviation. The two-character State abbreviation (table 1).

6. STATENM   State name. State names are left justified.

7. INVYR   Inventory year. The calendar year that best represents when the inventory data were collected (e.g., 1994). FIA data are often collected over more than 1 year; however, a specific year is selected that best represents the inventory cycle's subcycle. FIA publications based on an inventory are said to be an analysis of the forest resource as of this date.

8. MODDATE   Date the data were last modified for this State, cycle, and subcycle. Initially this is the date when the data are first loaded into the database. If any modifications are made to any of the records (SURVEY, COUNTY, PLOT, SUBPLOT, COND (Condition), TREE, SEEDLING, SITETREE, OR BOUNDARY), MODDATE will be changed to the date the modification was made.

9. CENSUSYR   Census year. The year (e.g., 1980 or 1990) of the Bureau of the Census land area figures to which total State land area is reconciled.

10. NFSYR   National Forest System Area Control Year. The Forest Service produces an annual report entitled "Land Areas of the National Forest System." Forest Inventory area estimates of lands administered by the Forest Service are reconciled to match these reported numbers. NFSYR is the year of the report (-1 if not applicable).

11. RSCD   Region or Station code. Identification number of the Forest Service Region or Station that provided the inventory data.

Code	Region or Station and phone number
1	Region 1, Northern Region
2	Region 2, Rocky Mountain Region
3	Region 3, Southwestern Region
4	Region 4, Intermountain Region
5	Region 5, Pacific Southwest Region
6	Region 6, Pacific Northwest Region
8	Region 8, Southern Region

9	Region 9, Eastern Region		
10	Region 10, Alaska Region		
22	Rocky Mountain Research Station, (801) 625-5388		
23	North Central Research Station, (651) 649-5139		
24	Northeastern Research Station, (610) 557-4075		
26	Pacific Northwest Research Station, (503) 808-2000		
27	Alaska - Pacific Northwest Research Station, (907) 271-2585		
33	Southern Research Station, (828) 257-4350		

12. NUMPANEL   Number of panels. The number of years it will take to measure all of the plots on the base grid. Plots on the base grid are measured on a multiple-year cycle with the intention of measuring 1/n (where n is the number of years in the cycle) of the plots (called a *panel*) every year. The plots in any panel are chosen so they are uniformly distributed within the monitoring area.

13. NOTES   An optional item where notes about the inventory may be stored.

Table 1.—*Codes used for STATENM, STATEAB, and STATECD. Also listed is the Region or Station code (RSCD) of the FIA unit responsible for collecting data in that State.*

STATENM	STATEAB	STATECD	RSCD	STATENM	STATEAB	STATECD	RSCD
Alabama	AL	01	33	Minnesota	MN	27	23
Alaska-section 1	AK	102	27	Mississippi	MS	28	33
Alaska-section 2	AK	202	27	Missouri	MO	29	23
Alaska-section 3	AK	302	27	Montana	MT	30	22
Alaska-section 4	AK	402	27	Nebraska	NE	31	23
Alaska-section 5	AK	502	27	Nevada	NV	32	22
Alaska-section 6	AK	602	27	New Hampshire	NH	33	24
Alaska-section 7	AK	702	27	New Jersey	NJ	34	24
Alaska-section 8	AK	802	27	New Mexico	NM	35	22
Arizona	AZ	04	22	New York	NY	36	24
Arkansas	AR	05	33	North Carolina	NC	37	33
California	CA	06	26	North Dakota	ND	38	23
Colorado	CO	08	22	Ohio	OH	39	24
Connecticut	CT	09	24	Oklahoma	OK	40	33
Delaware	DE	10	24	Oregon	OR	41	26
Florida	FL	12	33	Pennsylvania	PA	42	24
Georgia	GA	13	33	Rhode Island	RI	44	24
Hawaii	HI	15	26	South Carolina	SC	45	33
Idaho	ID	16	22	South Dakota	SD	46	23
Illinois	IL	17	23	Tennessee	TN	47	33
Indiana	IN	18	23	Texas	TX	48	33
Iowa	IA	19	23	Utah	UT	49	22
Kansas	KS	20	23	Vermont	VT	50	24
Kentucky	KY	21	33	Virginia	VA	51	33
Louisiana	LA	22	33	Washington	WA	53	26
Maine	ME	23	24	West Virginia	WV	54	24
Maryland	MD	24	24	Wisconsin	WI	55	23
Massachusetts	MA	25	24	Wyoming	WY	56	22
Michigan	MI	26	23				

County Table (Oracle table name is COUNTY)

Column name	Oracle data type	Value or unit of measure	Key data item
1. TABLENM	VARCHAR2 (8)	COUNTY	
2. STATECD	NUMBER (4)	Coded	X
3. UNITCD	NUMBER (2)	Coded	X
4. COUNTYCD	NUMBER (3)	Coded	X
5. COUNTYNM	VARCHAR2 (28)	Name	
6. UNITNM	VARCHAR2 (28)	Name	

1. TABLENM   Table name. Identifies the table to which the record belongs.

2. STATECD   State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. UNITCD   Survey unit code. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

4. COUNTYCD   County code. The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

5. COUNTYNM   County name. County name as recorded by the Bureau of the Census, 1990, for individual counties, or the name given to a similar governmental unit by the FIA program. County names are left justified. Only the first 28 characters of the name are used. See Appendix C for names.

6. UNITNM   Unit name. A 28-character name given to each survey unit for descriptive purposes.

Plot Table (Oracle table name is PLOT)

	Column name	Oracle data type	Value or unit of measure	Key data item	Needed[1]
1.	TABLENM	VARCHAR2 (8)	PLOT		
2.	STATECD	NUMBER (4)	Coded	X	A
3.	CYCLE	NUMBER (2)	Number	X	A
4.	SUBCYCLE	NUMBER (2)	Number	X	A
5.	UNITCD	NUMBER (2)	Coded	X	A
6.	COUNTYCD	NUMBER (3)	Coded	X	A
7.	PLOT	NUMBER (5)	Number	X	A
8.	MEASYEAR	NUMBER (4)	Year (YYYY)		A
9.	MEASMON	NUMBER (2)	Month (MM)		A
10.	MEASDAY	NUMBER (2)	Day (DD)		A
11.	REMPER	NUMBER (3,1)	Years		A
12.	KINDCD	NUMBER (2)	Coded		A
13.	DESIGNCD	NUMBER (4)	Coded		A
14.	RDCD	NUMBER (2)	Coded		F
15.	RDDISTCD	NUMBER (2)	Coded		F
16.	RDUSECD	NUMBER (2)	Coded		F
17.	PUBUSECD	NUMBER (2)	Coded		F
18.	REUSECD1	NUMBER (2)	Coded		F
19.	REUSECD2	NUMBER (2)	Coded		F
20.	REUSECD3	NUMBER (2)	Coded		F
21.	WATERCD	NUMBER (2)	Coded		F
22.	LAT	NUMBER (6,2)	Decimal degree		A
23.	LON	NUMBER (6,2)	Decimal degree		A
24.	ELEV	NUMBER (5)	Feet		F
25.	EXPCURR	NUMBER (7)	Acres		A
26.	EXPVOL	NUMBER (7)	Acres		A
27.	EXPGROW	NUMBER (7)	Acres		A
28.	GROWCD	NUMBER (2)	Coded		A
29.	EXPMORT	NUMBER (7)	Acres		A
30.	MORTCD	NUMBER (2)	Coded		A
31.	EXPREMV	NUMBER (7)	Acres		A
32.	EXPCHNG	NUMBER (7)	Acres		A
33.	P2PANEL	NUMBER (2)	Number		A
34.	P3PANEL	NUMBER (2)	Number		A
35.	ECOSUBCD	VARCHAR2 (6)	Name		A
36.	CONGCD	NUMBER (4)	Number		A
37.	MANUAL	NUMBER (3,1)	Number		A

[1]*A = all plots*
F = all forested plots (LANDCLCD = 1)

1. TABLENM   Table name. Identifies the table to which the record belongs.

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4. SUBCYCLE — Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle shows in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. UNITCD — Survey unit code. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

6. COUNTYCD — County code. Identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

7. PLOT — Plot number. NOTE: Plot numbers are unique within a county for the North Central, Northeastern, and Southern FIA units. Plot numbers are unique within a county/survey unit combination for the Rocky Mountain and Pacific Northwest FIA units.

8. MEASYEAR — Measurement year. The year in which the plot was actually measured. This year may differ from INVYR in the SURVEY table.

9. MEASMON — Measurement month. The month in which the plot was actually measured.

Code	Month
1	January
2	February
3	March
4	April
5	May
6	June
7	July
8	August
9	September
10	October
11	November
12	December

10. MEASDAY — Measurement day. The day of the month in which the plot was actually measured.

11. REMPER — Remeasurement period code. The number of years between measurements of remeasured plots. This item is coded -1 for new plots. Remeasurement period is based on the number of growing seasons between measurements. Allocation of parts of the growing season by month is different for each FIA program. Contact the FIA program for information on how this is done for a particular State. NOTE: It is **not** valid to use REMPER to estimate periodic change.

12. KINDCD   Plot kind code. Indicates whether the plot is being measured for the first time, had been measured in a previous cycle and is being remeasured, had been remeasured previously but could not be relocated and this is the replacement, or had been measured in a previous cycle and data for this cycle are updated (estimated) with a model.

Code   Plot kind
1   New
2   Remeasured
3   Replacement
4   Modeled

13. DESIGNCD   Plot design code. Indicates the type of plot design used to collect the data. Contact appropriate FIA program for specific code definitions.

Code   Plot design
1   National FIA mapped plot design consisting of four fixed-radius subplots
100-199   Northeastern Station (NE)
200-299   Southern Station (SRS)
300-399   North Central Station (NC)
400-499   Rocky Mountain Station (RM)
500-599   Pacific Northwest Station (PNW)
600-699   Alaska

14. RDCD   Trail or road code. The type of trail or road that is closest to the plot and within 1 mile of plot center. If two or more roads are the same distance away, the higher quality one is recorded. New in 1999.

Code   Type of trail or road
0   None within 1 mile
1   Paved road or highway
2   Improved gravel road
3   Improved dirt road
4   Unimproved dirt or four-wheel drive road
5   Human access trail primarily for recreational use
-1   Unavailable

15. RDDISTCD   Code for distance to improved road. The distance from plot center to the nearest improved road (trails or roads codes 1, 2, or 3) that is maintained. New in 1999.

Code   Horizontal distance
1   100 ft or less
2   101 ft to 300 ft
3   301 ft to 500 ft
4   501 ft to 1,000 ft
5   1,001 ft to 1/2 mile
6   1/2 to 1 mile
7   1 to 3 miles
8   3 to 5 miles
9   Greater than 5 miles
-1   Unavailable

16. **RDUSECD**   Road use restrictions code. The kind of access restrictions placed on roads used to travel to the plot starting point. New in 1999.

Code	Road use restrictions
0	None
1	Locked gate or cable across road
2	Road blocked by human obstruction, not gate or cable (e.g., mound)
3	Road blocked by natural occurrences (trees blown onto road, road or bridge washed out)
4	Posted no motorized vehicle
9	Other
-1	Unavailable

17. **PUBUSECD**   Public use restriction code. Restrictions posted near or on the plot that limits use of the area containing the plot. New in 1999.

Code	Public use restrictions
0	None
1	Keep out / no trespassing
2	No hunting or fishing
3	No dumping
9	Other
-1	Unavailable

18. **REUSECD1**   Recreation use code 1. Primary recreation use within the accessible forest land portion of any of the four subplots, based on evidence such as campfire rings, compacted areas (from tents), hiking trails, bullet or shotgun casings, and tree stands. Recreational use that has had the most significant impact on the plot area is recorded. For example, in general, numerous four-wheel drive or ATV trails would be coded before camping, camping before hiking, and hiking before fishing. The coding system provided is in order of significance. Physical recreation evidence must be present to code 1-9. Dumping of trash is ignored when no evidence of recreation is present. New in 1999.

Code	Recreation Use
0	None
1	Motor vehicle (ATV, jeep, snowmobile)
2	Horse riding, dog team, or ski trails
3	Camping
4	Hiking
5	Hunting/shooting
6	Fishing
7	Boating (launch sites or docks)
9	Other
-1	Unavailable

19. **REUSECD2**   Recreation use code 2. The second most significant recreational use. Same codes as REUSECD1 are used.

20. **REUSECD3**   Recreation use code 3. The third most significant recreational use. Same codes as REUSECD1 are used.

21. WATERCD   Water on plot code. Water body less than 1 acre in size or a stream less than 30 feet wide that has the greatest impact on the area within the forest land portion of the four subplots. The coding hierarchy is listed in order from large permanent water to temporary water. New in 1999.

Code	Water on Plot
0	None (no water within any annular plot)
1	Permanent streams or ponds too small to qualify as noncensus water
2	Permanent water (too small to qualify as noncensus water) in the form of deep swamps, bogs, marshes without standing trees present or with standing trees and less than 1 acre
3	Ditch/canal—humanmade channels used as a means of moving water, e.g., for irrigation or drainage, which are too small to qualify as noncensus water
4	Temporary streams
5	Flood zones—evidence of flooding when bodies of water exceed their natural banks
9	Other temporary water
-1	Unavailable

22. LAT   Latitude North American Datum of 1983 (NAD 83 datum). The approximate latitude of the plot in decimal degrees to the nearest 100 seconds (0.028 degrees). The precision of this item along the meridian is ±1,542 m at latitude 45 degrees north. A value of -1 means that latitude was not recorded. However, in some cases the county centroid may be entered when the actual location is not available. Actual plot locations cannot be released.

23. LON   Longitude NAD 83 datum. The approximate longitude of the plot in decimal degrees to the nearest 100 seconds (0.028 degrees). The precision of this item along the parallel is ±1,094 m at latitude 45 degrees. A value of -1 means that longitude was not recorded. However, in some cases the county centroid may be entered when the actual location is not available.

24. ELEV   Elevation. The distance the plot is located above sea level, recorded in feet (NAD 83 datum). A value of -1 means that elevation was not recorded. Other negative values indicate distance below sea level.

25. EXPCURR   Current expansion factor. The number of acres the sample plot represents for making current estimates of area. The sum of EXPCURR over all plot-level records for a particular State is the total land and water area of the State. The number of acres a condition represents can be determined by multiplying EXPCURR times CONDPROP (in the COND table). See Chapter 4 for calculation algorithms.

26. EXPVOL   Volume expansion factor. The number of acres the sample plot represents for making current estimates of volume, biomass, and number of trees. Growing-stock volume will be "expanded" over the appropriate acreage by multiplying EXPVOL times the product

of VOLCFNET (in the TREE table) and the trees per acre item (TPACURR in the TREE table). See Chapter 4 for calculation algorithms.

27. EXPGROW
Growth expansion factor. The number of acres the sample plot represents for estimating growth. Growth will be "expanded" over the appropriate acreage by multiplying EXPGROW times the product of the growth item (GROWCFGS, GROWBFSL, or GROWCFAL in the TREE table) and the growth trees per acre item (TPAGROW in the TREE table). Total growth in a State is calculated by summing these expanded estimates from all trees on all plots in a particular State in the FIADB. Some plots may have a value of zero in this field. For example, in a State where both remeasured and new plots exist for a cycle, growth estimates might only be based on remeasurement plots. Therefore, new plots would have a value of zero in EXPGROW. See Chapter 4 for calculation algorithms.

28. GROWCD
Code for type of annual volume growth. Indicates how volume growth is estimated. Current annual growth is an estimate of the change in volume that occurred in a 1-year period ending when the plot was measured. Periodic annual growth is an estimate of the average annual change in volume occurring between two measurements, usually the current cycle and previous cycle.

Code	Type of annual volume growth
1	Current annual
2	Periodic annual
-1	Plot does not contribute to growth estimates

29. EXPMORT
Mortality expansion factor. The number of acres the sample plot represents for estimating mortality. Mortality will be "expanded" over the appropriate acreage by multiplying EXPMORT times the product of the mortality item (MORTCFGS, MORTBFSL, or MORTCFAL in the TREE table) and the mortality trees per acre item (TPAMORT in the TREE table). Total mortality in a State is calculated by summing these expanded estimates from all trees on all plots in a particular State in the FIADB. Some plots may have a value of zero in this field. For example, in a State where both remeasured and new plots exist for a cycle, mortality estimates might only be based on remeasurement plots. Therefore, new plots would have a value of zero in EXPMORT. See Chapter 4 for calculation algorithms.

30. MORTCD
Code for type of annual mortality volume. Indicates how mortality volume is estimated. Current annual mortality is an estimate of the volume of trees dying during a 1-year period ending when the plot was measured. Periodic annual mortality is an estimate of the average annual volume of trees dying between two measurements, usually the current cycle and previous cycle.

Code Type of annual mortality volume
1   Current annual
2   Periodic annual
-1   Plot does not contribute to mortality estimates

31. EXPREMV   Removals expansion factor. The number of acres the sample plot represents for estimating removals. Removals will be "expanded" over the appropriate acreage by multiplying EXPREMV times the product of the removal item (REMVCFGS, REMVBFSL, or REMVCFAL in the TREE table) and the removal trees per acre item (TPAREMV in the TREE table). In inventories where removals are only estimated on remeasurement plots, EXPREMV=0 for new or temporary plots. See Chapter 4 for calculation algorithms.

32. EXPCHNG   Periodic change expansion factor. The number of acres that the sample plot represents for estimating periodic area change.

33. P2PANEL   Phase 2 panel number. Forest Inventory and Analysis panel number. This is recorded for inventories begun after 1998. For most inventories begun before 1999, the value of P2PANEL is set to -1. Plots on the base grid are measured on a multiple-year cycle with the intention of measuring 1/n (where n is the number of years in the cycle) of the plots (called a *panel*) every year. The plots in any panel are chosen so they are uniformly distributed within the monitoring area.

34. P3PANEL   Phase 3 panel number. Forest Health Monitoring panel number. Forest Health Monitoring was designed to monitor, assess, and report on long-term status, changes, and trends in forest ecosystem health on a regional and national basis. Before 1999, FHM and FIA were distinct programs and the plots were not necessarily co-located. FIA and FHM field plots are co-located for inventories begun after 1998. The FHM suite of data is now collected on a subset of FIA plots and are referred to as phase 3 data. Phase 3 data are collected on a 5-year cycle with one-fifth of the plots (called a panel) measured every year. The phase 3 plots in any panel are chosen so they are uniformly distributed within the monitoring area. The value for P3PANEL ranges from 0 to 5 for those plots where phase 3 data were collected. The value of P3PANEL for all other plots is -1.

35. ECOSUBCD   Ecological subsection code. An area of similar surficial geology, lithology, geomorphic process, soil groups, subregional climate, and potential natural communities. Subsection boundaries usually correspond with discrete changes in geomorphology. Subsection information is used for broad planning and assessment. Subsection codes may consist of up to six characters and were developed by the Forest Service as part of the National Hierarchical Framework of Ecological Units.

36. CONGCD   Congressional District code. A territorial division of a State from which a member of the U.S. House of Representatives is elected. There are 435 congressional districts in the United States apportioned to the States based on population; each State receives at least one congressional district. The Congressional

District code assigned to a plot (regardless of when it was measured) is for the most recent Congress. CONGCD is a four-digit number. The first two digits are the State FIPS code and the last two digits are the congressional district number. If a State has only one congressional district, the congressional district number is 00.

37. MANUAL   Field manual version. Version of the National Field Manual used to describe procedures for collecting data on the plot. New in 1999.

Subplot Table (Oracle table name is SUBPLOT)

	Column name	Oracle data type	Value or unit of measure	Key data item
1.	TABLENM	VARCHAR2 (8)	SUBPLOT	
2.	STATECD	NUMBER (4)	Coded	X
3.	CYCLE	NUMBER (2)	Number	X
4.	SUBCYCLE	NUMBER (2)	Number	X
5.	UNITCD	NUMBER (2)	Coded	X
6.	COUNTYCD	NUMBER (3)	Coded	X
7.	PLOT	NUMBER (5)	Number	X
8.	SUBP	NUMBER (3)	Number	X
9.	SUBPCOND	NUMBER (1)	Number	
10.	MICRCOND	NUMBER (1)	Number	
11.	SLOPE	NUMBER (3)	Percent	
12.	ASPECT	NUMBER (3)	Degrees	
13.	WATERDEP	NUMBER (2,1)	Feet	

1. TABLENM   Table name. Identifies the table to which the record belongs.

2. STATECD   State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. CYCLE   Inventory cycle number. Identifies the cycle number for the inventory data. For example, a 4 shows the data came from the fourth inventory of that State. A cycle number greater than 1 does not necessarily mean that information for previous cycles resides in the database.

4. SUBCYCLE   Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle shows in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. UNITCD   Survey unit code. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

6. COUNTYCD   County code. Identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

7. PLOT   Plot number. NOTE: Plot numbers are unique within a county for the North Central, Northeastern, and Southern FIA units. Plot numbers are unique within a county/survey unit combination for the Rocky Mountain and Pacific Northwest FIA units.

8. SUBP   Subplot number. Number of the subplot.

9. SUBPCOND   Subplot center condition. Condition number for the condition at the center of the subplot.

10. MICRCOND   Microplot center condition. Condition number for the condition at the center of the microplot.

11. SLOPE   Subplot slope. Average percent slope of the subplot. Valid values are 0 through 200. When slope is not recorded, this field contains -1.

12. ASPECT   Subplot aspect. The direction of drainage for most of the subplot, in degrees from magnetic north. North is recorded as 360. When slope <5, there is no aspect and this item is set to zero. For subplots without a recorded aspect, this field contains -1.

13. WATERDEP   Water or snow depth. The approximate depth (in feet) of water or snow covering the subplot when data were collected (-1 if not collected). New in 1999.

Condition Table (Oracle table name is COND)

	Column name	Oracle data type	Value or unit of measure	Key data item	Recorded on[1] Mapped design	Other designs
1.	TABLENM	VARCHAR2 (8)	COND			
2.	STATECD	NUMBER (4)	Coded	X	A	A
3.	CYCLE	NUMBER (2)	Number	X	A	A
4.	SUBCYCLE	NUMBER (2)	Number	X	A	A
5.	UNITCD	NUMBER (2)	Coded	X	A	A
6.	COUNTYCD	NUMBER (3)	Coded	X	A	A
7.	PLOT	NUMBER (5)	Number	X	A	A
8.	CONDID	NUMBER (1)	Number	X	A	A
9.	CONDPROP	NUMBER (5,4)	Number		A	A
10.	LANDCLCD	NUMBER (1)	Coded		A	A
11.	RESERVCD	NUMBER (2)	Coded		F	F
12.	OWNCD	NUMBER (2)	Coded		F	F
13.	OWNGRPCD	NUMBER (2)	Coded		F	F
14.	FORINDCD	NUMBER (2)	Coded		F	F
15.	ADFORCD	NUMBER (4)	Coded		A	A
16.	FORTYPCD	NUMBER (3)	Coded		F	F
17.	FLDTYPCD	NUMBER (3)	Coded		F	F
18.	MAPDEN	NUMBER (1)	Coded		F	
19.	STDAGE	NUMBER (4)	Years		F	O
20.	STDSZCD	NUMBER (2)	Coded		F	T
21.	FLDSZCD	NUMBER (2)	Coded		F	T
22.	SITECLCD	NUMBER (2)	Coded		F	F
23.	SICOND	NUMBER (3)	Feet		F	O
24.	SIBASE	NUMBER (3)	Years		F	O
25.	SISP	NUMBER (3)	Coded		F	O
26.	STDORGCD	NUMBER (2)	Coded		F	O
27.	STDORGSP	NUMBER (3)	Coded		F	
28.	SLOPE	NUMBER (3)	Percent		F	F
29.	ASPECT	NUMBER (3)	Degrees		F	F
30.	PHYSCLCD	NUMBER (2)	Coded		F	
31.	GSSTKCD	NUMBER (2)	Coded		F	T
32.	ALSTKCD	NUMBER (2)	Coded		F	O
33.	TRTOPCD	NUMBER (2)	Coded		N	N
34.	DSTRBCD1	NUMBER (2)	Coded		F	
35.	DSTRBYR1	NUMBER (4)	Year		F	
36.	DSTRBCD2	NUMBER (2)	Coded		F	
37.	DSTRBYR2	NUMBER (4)	Year		F	
38.	DSTRBCD3	NUMBER (2)	Coded		F	
39.	DSTRBYR3	NUMBER (4)	Year		F	
40.	TRTCD1	NUMBER (2)	Coded		F	
41.	TRTYR1	NUMBER (4)	Year		F	
42.	TRTCD2	NUMBER (2)	Coded		F	
43.	TRTYR2	NUMBER (4)	Year		F	
44.	TRTCD3	NUMBER (2)	Coded		F	
45.	TRTYR3	NUMBER (4)	Year		F	
46.	PASTNFCD	NUMBER (2)	Coded		F	
47.	PRESNFCD	NUMBER (2)	Coded		NF	
48.	NFYEAR	NUMBER (4)	Year		NF	

[1] A = all conditions; F = all forested conditions (LANDCLCD = 1); T = all timberland conditions (LANDCLCD = 1, SITECLCD <7); N = nonindustrial private timberland RPA requirement, optional on all other timberland conditions; O = optional on forested conditions, not collected on nonforest conditions; NF = nonforest conditions.

1. TABLENM   Table name. Identifies the table to which the record belongs.

2. STATECD   State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. CYCLE   Inventory cycle number. Identifies the cycle number for the inventory data. For example, a 4 shows the data came from the fourth inventory of that State. A cycle number greater than 1 does not necessarily mean that information for previous cycles resides in the database.

4. SUBCYCLE   Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle shows in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. UNITCD   Survey unit code. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

6. COUNTYCD   County code. Identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

7. PLOT   Plot number. NOTE: Plot numbers are unique within a county for the North Central, Northeastern, and Southern FIA units. Plot numbers are unique within a county/survey unit combination for the Rocky Mountain and Pacific Northwest FIA units.

8. CONDID   Condition number. Unique identifying number assigned to each condition on a plot. Condition is defined by owner class and land class. Differences in broad forest type, stand size, stand origin, and stand density further define condition for forest land. Mapped nonforest conditions are also assigned numbers. The condition at the center of subplot one is given condition number 1. Other conditions on the plot are assigned numbers sequentially. Once a number has been assigned, the number is reused whenever that same condition is encountered on the plot.

9. CONDPROP   Condition proportion. Proportion of the plot that is in the condition. To determine the acres a particular condition represents, multiply the plot expansion factor (EXPCURR) by CONDPROP. The sum of all condition proportions for a plot equals 1.0000.

10. LANDCLCD   Land class code. Indicates the basic land cover.

Code Land class
1   Accessible forest: Forest land is defined as lands with at least a stocking of 10 (or at least 5 percent cover in chaparral type) of live forest trees of any size, or formerly having

such tree cover, and not currently developed for nonforest use. The minimum area for classification of forest land is usually 1 acre with a minimum width of 120 feet stem-to-stem. Forested strips must be at least 120 feet wide for a continuous length of at least 363 feet to meet the acre threshold. Unimproved roads and trails, as well as clearings in forest areas are classified as forest if less than 120 feet wide or smaller than 1 acre.

2   Nonforest: Land that has never supported forests or land formerly forested but now developed for uses such as agriculture (including Christmas tree plantations, orchards, nurseries, and agroforestry), residences, commerce, industry, city parks, or improved roads. If located within forest areas, unimproved roads and nonforested strips must be more than 120 feet wide. Clearings and other openings in a forest area must be more than 1 acre to qualify as nonforest land.

3   Noncensus water: Streams, sloughs, estuaries, and canals between 30 and 200 feet, and lakes, reservoirs, and ponds between 1 and 4.5 acres in area. This definition was used in the 1990 census and applied when the data became available. Earlier inventories defined noncensus water differently.

4   Census water: Streams, sloughs, estuaries, and canals more than 200 feet wide, and lakes, reservoirs, and ponds more than 4.5 acres in size (1990 Census definition).

5   Denied access: Access to the plot or a portion of the plot denied by the legal owner or by an owner of land with the only reasonable route to the plot.

6   Hazardous: Access prohibited due to dangerous situations (cliffs, military reservations, strip mines, etc.).

7   Not in the sample: Outside the boundaries of the sample population.

11.   RESERVCD   Reserved status class code. Reserved land is land that is withdrawn by law(s) prohibiting the management of the land for the production of wood products.

Code	Reserved status class
0	Not reserved
1	Reserved
-1	Not recorded

12.   OWNCD   Owner class code. Indicates the class in which the landowner (at the time of the inventory) belongs.

Code	Owner class
11	National Forest: Lands administered by USDA Forest Service, National Forest System
12	National Grassland
13	Other Forest Service
21	National Park Service: Lands administered by USDI National Park Service
22	Bureau of Land Management: Lands administered by USDI Bureau of Land Management
23	Fish and Wildlife Service
24	Department of Defense/Energy

25	Other federal
31	State
32	Local (County, Municipal, etc.)
33	Other non-federal public
41	Corporate
42	Non-governmental conservation/natural resources organization
43	Unincorporated local partnership/association/club
44	Native American (Indian)
45	Individual
46	Undifferentiated private (Used in counties where a more specific ownership code might disclose information about an individual landowner)
-1	Not recorded

13. OWNGRPCD   Ownership group class code. A broader group of landowner classes.

Code   Ownership group
1	Forest Service (OWNCD 11, 12, 13)
2	Other federal (OWNCD 21, 22, 23, 24, 25)
3	State and local government (OWNCD 31, 32, 33)
4	Private (OWNCD 41, 42, 43, 44, 45, 46)
-1	Not recorded

14. FORINDCD   Private owner industrial status code. Indicates whether the landowner owns and operates a primary wood processing plant. A primary wood processing plant is any commercial operation that originates the primary processing of wood on a regular and continuing basis. Examples include: pulp or paper mill, sawmill, panel board mill, post or pole mill.

Code   Private owner industrial status
0	Not owned by a company with wood processing plant
1	Owned by a company with wood processing plant
-1	Unavailable (Not collected or OWNCD=46)

15. ADFORCD   Administrative forest code. Identifies the administrative unit (Forest Service Region and National Forest) in which the condition is located. If the land is not administered by the Forest Service, the value for this variable is set to -1. The first two digits of the four-digit code are for the Region number and the last two digits are for the National Forest number. See Appendix E for a complete list of codes.

16. FORTYPCD   Forest type code (derived by algorithm). The forest typing algorithm is a hierarchical procedure. The algorithm begins by comparing the live tree stocking of softwoods and hardwoods and continues in a stepwise fashion comparing successively smaller subgroups of the preceding aggregation of initial types. The aggregated initial type groups used at each step of the process are called combined type groups. Each initial type group can occur in more than one of these combined groups. The stepwise progression proceeds in most cases until a plurality of an initial type group is identified. In certain situations the algorithm may revert to the field call. Detailed types are listed in Appendix D. Information on how data are assigned to these types for a particular State

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can be obtained by contacting the appropriate FIA unit. Nonstocked forest land has a live tree stocking <10. All forest conditions are assigned a forest type, and nonforest conditions are assigned -1.

17. FLDTYPCD   Code for forest type of the condition (assigned by the field crew). Forest type is based on the tree species or species groups forming a plurality of all live stocking. Detailed types are listed in Appendix D. Information on how data are assigned to these types for a particular State can be obtained by contacting the appropriate FIA unit. Nonstocked forest land has a live tree stocking <10. All forest conditions are assigned a forest type, and nonforest conditions are assigned -1.

18. MAPDEN   Code for change in tree density. Codes other than 1 are used to indicate that tree density is the only factor differentiating two conditions. New in 1999.

Code   **Change in tree density**
1   Initial tree density
2   Density class 2 – different than initial density
3   Density class 3 – different than initial density and density class 2

19. STDAGE   Stand age. The average total age, to the nearest year, of the trees (plurality of all live trees not overtopped) in the predominant stand-size class of the condition, determined using local procedures. Age is difficult to measure and therefore stand age may have large measurement errors. Nonstocked stands are recorded as 0. If age is not available, -1 is recorded. Any inventory dated 1995 or later will contain stand ages recorded to the nearest year. For some older inventories, stand age was recorded in 10-year classes for stands <100 years old, 20-year age classes for stands between 100 and 200 years, and 100-year age classes if older than 200 years. The value recorded is the midpoint of the age class.

20. STDSZCD   Code for stand-size class derived by algorithm. A classification of the predominant (based on stocking) diameter class of live trees within the condition. Large diameter trees are at least 11.0 inches diameter for hardwoods and at least 9.0 inches diameter for softwoods. Medium diameter trees are at least 5.0 inches diameter but not as large as large diameter trees. Small diameter trees are less than 5.0 inches diameter.

Code   **Stand-size class**
1   Large diameter: Stands with an all live stocking of at least 10 (base 100); with more than 50 percent of the stocking in medium and large diameter trees; and with the stocking of large diameter trees equal to or greater than the stocking of medium diameter trees.
2   Medium diameter: Stands with an all live stocking of at least 10 (base 100); with more than 50 percent of the stocking in medium and large diameter trees; and with the stocking of large diameter trees less than the stocking of medium diameter trees.

3   Small diameter: Stands with an all live stocking value of at least 10 (base 100) on which at least 50 percent of the stocking is in small diameter trees.

4   Chaparral: Forest land with all live stocking less than 10 and at least 5 percent cover by species that make up chaparral communities.

5   Nonstocked: Forest land with all live stocking less than 10.

-1   Not recorded.

21.   **FLDSZCD**   Code for stand-size class assigned by the field crew. A classification of the predominant (based on stocking) diameter class of live trees within the condition.

Code   **Stand-size class**

0   Nonstocked: Meeting the definition of accessible land and one of the following applies: 1) less than 10 percent stocked by trees of any size, and not classified as chaparral, or 2) for forest types where stocking standards are not available, less than 5 percent crown cover of trees of any size.

1   1.0 - 4.9 inches: At least 10 percent stocking (or 5 percent crown cover if stocking tables are not available) in trees of any size; and at least one-third of the crown cover is in trees less than 5.0 inches DBH/DRC.

2   5.0 - 8.9 inches (softwoods)/5.0 - 10.9 inches (hardwoods): At least 10 percent stocking (or 5 percent crown cover if stocking tables are not available) in trees of any size; and at least one-third of the crown cover is in trees greater than 5.0 inches DBH/DRC and the plurality of the crown cover is in softwoods 5.0 - 8.9 inches in diameter and/or hardwoods 5.0 - 10.9 in DBH, and for western woodland trees 5.0 - 8.9 inches in DRC.

3   9.0 - 19.9 inches (softwoods)/11.0 - 19.9 inches (hardwoods): At least 10 percent stocking (or 5 percent crown cover if stocking tables are not available) in trees of any size; and at least one-third of the crown cover is in trees greater than 5.0 inches DBH/DRC and the plurality of the crown cover is in softwoods 9.0 - 19.9 inches in diameter and/or hardwoods 11.0 - 19.9 inches in DBH, and for western woodland trees 9.0 - 19.9 inches in DRC.

4   20.0 - 39.9 inches: At least 10 percent stocking (or 5 percent crown cover if stocking tables are not available) in trees of any size; and at least one-third of the crown cover is in trees greater than 5.0 inches DBH/DRC and the plurality of the crown cover is in trees 20.0 - 39.9 inches DBH.

5   40.0+ inches: At least 10 percent stocking (or 5 percent crown cover if stocking tables are not available) in trees of any size; and at least one-third of the crown cover is in trees greater than 5.0 inches DBH/DRC and the plurality of the crown cover is in trees over 40.0+ inches DBH.

6   Chaparral: Less than 10 percent stocking by trees of any size, and greater than 5 percent crown cover of

species that make up chaparral communities.
-1   Not recorded.

22. SITECLCD   Site productivity class code. A classification of forest land in terms of inherent capacity to grow crops of industrial wood. Identifies the potential growth in cubic feet/acre/year and is based on the culmination of mean annual increment of fully stocked natural stands.

Code	Site productivity class (cubic feet/acre/year)
1	225+
2	165-224
3	120-164
4	85-119
5	50-84
6	20-49
7	0-19
-1	Not recorded

23. SICOND   Site index. Site index (in feet) within the condition. If site index is not available for the condition, a -1 is recorded.

24. SIBASE   Site index base age. The base age (in years) of the site index curves used to derive site index. A -1 is recorded if there is no site index.

25. SISP   Site index species code. The species upon which the site index is based. If there is no SI or the species associated with SI is not known, -1 is recorded.

26. STDORGCD   Stand origin code. Method of stand regeneration for the trees in the condition. An artificially regenerated stand is established by planting or artificial seeding.

Code	Stand origin
0	Natural stands
1	Clear evidence of artificial regeneration
-1	Not evaluated

27. STDORGSP   Stand origin species code. The species code for the predominant artificially regenerated species (only when STDORGCD=1, –1 otherwise).

28. SLOPE   Slope. The average percent slope within the condition. Valid values are 0 through 200. Before 2000, the field crew measured condition slope. Beginning in 2000, slope is collected on subplots but no longer collected for conditions. For plots taken after 2000, the slope from the subplot representing the greatest percentage of the condition will be assigned as a surrogate. In the event that two or more subplots represent the same amount of area in the condition, the slope from the lower numbered subplot is used. When slope is not recorded or cannot be derived, this field contains -1.

29. ASPECT   Aspect. The direction (in degrees) from magnetic north of drainage for most of the condition, recorded as the azimuth of this direction. North is recorded as 360. When slope is zero, there is no

aspect and this item is set to zero. Before 2000, the field crew measured condition aspect. Beginning in 2000, aspect is collected on subplots but no longer collected for conditions. For plots taken after 2000, the aspect from the subplot representing the greatest percentage of the condition will be assigned as a surrogate. In the event that two or more subplots represent the same percentage of area in the condition, the slope from the lower numbered subplot is used. For conditions without a recorded or derived aspect, this field contains -1.

30. PHYSCLCD   Physiographic class code. The general effect of land form, topographical position, and soil on moisture available to trees. New or additional classes in 1999.

Code   **Physiographic class**

Xeric sites (normally low or deficient in available moisture)

11   Dry Tops - Ridge tops with thin rock outcrops and considerable exposure to sun and wind.

12   Dry Slopes - Slopes with thin rock outcrops and considerable exposure to sun and wind. Includes most mountain/steep slopes with a southern or western exposure.

13   Deep Sands - Sites with a deep, sandy surface subject to rapid loss of moisture following precipitation. Typical examples include sand hills, ridges, and flats in the South, sites along the beach and shores of lakes and streams.

19   Other Xeric - All dry physiographic sites not described above.

Mesic sites (normally moderate but adequate available moisture)

21   Flatwoods - Flat or fairly level sites outside of flood plains. Excludes deep sands and wet, swampy sites.

22   Rolling Uplands - Hills and gently rolling, undulating terrain and associated small streams. Excludes deep sands, all hydric sites, and streams with associated flood plains.

23   Moist Slopes and Coves - Moist slopes and coves with relatively deep, fertile soils. Often these sites have a northern or eastern exposure and are partially shielded from wind and sun. Includes moist mountain tops and saddles.

24   Narrow Flood Plains/Bottomlands - Flood plains and bottomlands less than 1/4 mile in width along rivers and streams. These sites are normally well drained but are subjected to occasional flooding during periods of heavy or extended precipitation. Includes associated levees, benches, and terraces within a 1-mile limit. Excludes swamps, sloughs, and bogs.

25   Broad Flood Plains/Bottomlands - Flood plains and bottomlands less than 1/4 mile or wider along rivers and streams. These sites are normally well drained but are subjected to occasional flooding during periods of heavy or extended precipitation. Includes associated levees, benches, and terraces within a 1/4-mile limit. Excludes swamps, sloughs, and bogs with year-round water problems within the 1/4-mile limit.

29   Other Mesic - All moderately moist physiographic sites not described above.

Hydric sites (normally abundant or overabundant moisture all year)

  31   Swamps/Bogs - Low, wet, flat, forested areas usually quite extensive that are flooded for long periods except during periods of extreme drought. Excludes cypress ponds and small drains.

  32   Small Drains - Narrow, stream-like, wet strands of forest land often without a well-defined stream channel. These areas are poorly drained or flooded throughout most of the year and drain the adjacent higher ground.

  33   Bays and Wet Pocosins - Low, wet, boggy sites characterized by peaty or organic soils. May be somewhat dry during periods of extended drought. Examples include sites in the Lake States with lowland swamp conifers.

  34   Beaver Ponds.

  35   Cypress Ponds.

  39   Other Hydric - All other hydric physiographic sites.

  -1   Unavailable.

31. GSSTKCD   Growing-stock stocking code. Stocking of the condition by growing-stock trees including seedlings.

Code	Growing-stock stocking	
1	Overstocked	(100+ %)
2	Fully stocked	(60 – 99%)
3	Medium stocked	(35 – 59%)
4	Poorly stocked	(10 – 34%)
5	Nonstocked	(0 – 9%)
-1	Unavailable	

32. ALSTKCD   All live stocking code. Stocking of the condition by live trees including seedlings. Data are in classes as listed for GSSTKCD above. This variable may not be present for inventories using older designs.

33. TRTOPCD   Treatment opportunity class code. Identifies the physical opportunity to improve stand conditions by applying management practices. Determined only for timberland (SITECLCD 1-6). This variable is mandatory for nonindustrial private lands AND may not be available for other ownerships.

Code	Treatment opportunity class
1	Regeneration without site preparation: The area is characterized by the absence of a manageable stand because of inadequate stocking of growing stock. Growth will be much below the potential for the site if the area is left alone. Prospects are not good for natural regeneration. Artificial regeneration will require little or no site preparation.
2	Regeneration with site preparation: The area is characterized by the absence of a manageable stand because of inadequate stocking of growing stock. Growth will be much below the potential for the site if the area is left alone. Either natural or artificial regeneration will require site preparation.

3   Stand conversion: The area is characterized by stands of undesirable, chronically diseased, or off-site (found where not normally expected) species. Growth and quality will be much below the potential for the site if the area is left alone. The best prospect is for conversion to a different forest type or species.

4   Thinning seedlings and saplings: The stand is characterized by a dense stocking of growing stock. Stagnation appears likely if left alone. Stocking must be reduced to help crop trees attain dominance.

5   Thinning poletimber: The stand is characterized by a dense stocking of growing stock. Stocking must be reduced to prevent stagnation or to confine growth to selected, high-quality crop trees.

6   Other stocking control: The stand is characterized by an adequate stocking of seedlings, saplings, and poletimber growing stock, mixed with competing vegetation either overtopping or otherwise inhibiting the development of crop trees. The undesirable material must be removed to release overtopped trees, to prevent stagnation, or to improve composition, form, or growth of the residual stand.

7   Other intermediate treatments: The stand would benefit from other special treatments, such as fertilization to improve the growth potential of the site, and pruning to improve the quality of individual crop trees.

8   Clearcut harvest: The area is characterized by a mature or overmature sawtimber stand of sufficient volume to justify a commercial harvest. The best prospect is to harvest the stand and regenerate.

9   Partial cut harvest: The stand is characterized by poletimber- or sawtimber-size trees with sufficient merchantable volume for a commercial harvest, which will meet intermediate stand treatment needs or prepare the stand for natural regeneration. The stand is of a favored species composition and may be even or uneven aged. Included are such treatments as commercial thinning, seed tree, or shelterwood regeneration, and use of the selection system to maintain an uneven-age stand.

10   Salvage harvest: The stand is characterized by excessive damage to merchantable timber because of fire, insects, disease, wind, ice, or other destructive agents. The best prospect is to remove damaged or threatened material.

11   No treatment: No silvicultural treatment is needed.

-1   Not available/unclassified.

34. DSTRBCD1   Disturbance 1 code. Indicates the kind of disturbance occurring since the last measurement or within the last 5 years for new plots. The area affected by the disturbance must be at least 1 acre in size. A significant level of disturbance (mortality or damage to 25 percent of the trees in the condition) is required. New in 1999.

Code Disturbance
  0   No visible disturbance
 10   Insect damage

20   Disease damage
         30   Weather damage other than the following:
           31   Ice damage
           32   Wind damage
           33   Flood damage
           34   Drought damage
         40   Fire damage (from crown and ground fire)
           41   Ground fire damage
           42   Crown fire damage
         50   Damage from domestic animal/livestock
         60   Damage from wild animals other than:
           61   Damage from beaver
           62   Damage from porcupine
           63   Damage from deer/ungulate
           64   Damage from bear
           65   Damage from rabbit
         70   Damage caused by humans and not listed as a Treatment
         80   Other natural
         -1   Unavailable

35. DSTRBYR1   Year of Disturbance 1. Year in which Disturbance 1 is estimated
                 to have occurred (-1 if not applicable). New in 1999.

36. DSTRBCD2   Disturbance 2 code. Indicates the kind of disturbance occurring
                 since the last measurement or within the last 5 years for new
                 plots. A significant level of disturbance (mortality or damage to 25
                 percent of the trees in the condition) is required. Use same codes
                 as DSTRBCD1. New in 1999.

37. DSTRBYR2   Year of Disturbance 2. Year in which Disturbance 2 is estimated
                 to have occurred (-1 if not applicable). New in 1999.

38. DSTRBCD3   Disturbance 3 code. Indicates the kind of disturbance occurring
                 since the last measurement or within the last 5 years for new
                 plots. A significant level of disturbance (mortality or damage to 25
                 percent of the trees in condition) is required. Use same codes as
                 DSTRBCD1. New in 1999.

39. DSTRBYR3   Year of Disturbance 3. Year in which Disturbance 3 is estimated
                 to have occurred (-1 if not applicable). New in 1999.

40. TRTCD1   Stand Treatment 1 code. Indicates the type of stand treatment
                 that has occurred since the last measurement or within the last 5
                 years for new plots. The area affected by the treatment must be at
                 least 1 acre in size. Inventories conducted before 1999 may
                 record treatments occurring within the last 20 years for new
                 plots. New in 1999.

Code   Stand treatment
   0   No observable treatment.
  10   Cutting: The removal of one or more trees from a stand.
  20   Site Preparation: Clearing, slash burning, chopping,
        disking, bedding, or other practices clearly intended to
        prepare a site for either natural or artificial regeneration.
  30   Artificial Regeneration: Planting or direct seeding has
        resulted in a stand at least 50 percent stocked with live
        trees of any size.

	40	Natural Regeneration: Growth of existing trees and/or natural seeding has resulted in a stand at least 50 percent stocked with live trees of any size.
	50	Other Silvicultural Treatment: The use of fertilizers, herbicides, girdling, pruning, or other activities (not already listed above) designed to improve the commercial value of the residual stand.
	-1	Unavailable.

41. TRTYR1   Treatment year 1. Year in which Stand Treatment 1 is estimated to have occurred (-1 if not applicable). New in 1999.

42. TRTCD2   Stand Treatment 2 code. Indicates the type of stand treatment that has occurred since the last measurement or within the last 5 years for new plots. Inventories conducted before 1999 may record treatments occurring within the last 20 years for new plots. Use same codes as TRTCD1. New in 1999.

43. TRTYR2   Treatment year 2. Year in which Stand Treatment 2 is estimated to have occurred (-1 if not applicable). New in 1999.

44. TRTCD3   Stand Treatment 3 code. Indicates the type of stand treatment that has occurred since the last measurement or within the last 5 years for new plots. Inventories conducted before 1999 may record treatments occurring within the last 20 years for new plots. Use same codes as TRTCD1. New in 1999.

45. TRTYR3   Treatment year 3. Year in which Stand Treatment 3 is estimated to have occurred (-1 if not applicable). New in 1999.

46. PASTNFCD   Past nonforest/inaccessible land use code. For conditions classified as nonforest or inaccessible during the previous inventory but classified as accessible forest land during current inventory. Indicates the kind of land use occurring at the previous inventory. New in 1999.

Code   Past nonforest land use
  10   Agricultural land
    11   Cropland
    12   Pasture (improved through cultural practices)
    13   Idle farmland
    14   Orchard
    15   Christmas tree plantation
  20   Rangeland
  30   Developed
    31   Cultural (business, residential, other intense human activity)
    32   Rights-of-way (improved road, railway, power line)
    33   Recreation (park, golf course, ski run)
  40   Other (undeveloped beach, marsh, bog, non-census water)
  90   Not sampled
    91   Census water
    92   Denied access
    93   Hazardous
    94   Not in sample
  -1   Unavailable

47. PRESNFCD   Present nonforest land use code. Indicates the kind of land use occurring now for conditions previously classified as forest but now nonforest. Use same codes as PASTNFCD. New in 1999.

48. NFYEAR   Nonforest year. An estimate of the year that a previously forested condition was converted to a nonforest condition (-1 if not applicable). New in 1999.

Tree Table (Oracle table name is TREE)

	Column name	Oracle data type	Value or unit of measure	Key data item
1.	TABLENM	VARCHAR2 (8)	TREE	
2.	STATECD	NUMBER (4)	Coded	X
3.	CYCLE	NUMBER (2)	Number	X
4.	SUBCYCLE	NUMBER (2)	Number	X
5.	UNITCD	NUMBER (2)	Coded	X
6.	COUNTYCD	NUMBER (3)	Coded	X
7.	PLOT	NUMBER (5)	Number	X
8.	SUBP	NUMBER (3)	Number	X
9.	TREE	NUMBER (9)	Number	X
10.	CONDID	NUMBER (1)	Number	
11.	AZIMUTH	NUMBER (3)	Degrees	
12.	DIST	NUMBER (3,1)	Feet	
13.	PREVCOND	NUMBER (1)	Number	
14.	PREVSUBC	NUMBER (2)	Number	
15.	STATUSCD	NUMBER (1)	Coded	
16.	LEANCD	NUMBER (2)	Coded	
17.	UTILCD	NUMBER (1)	Coded	
18.	SPCD	NUMBER (3)	Coded	
19.	SPGRPCD	NUMBER (2)	Coded	
20.	DIA	NUMBER (5,2)	Inches	
21.	DIAHTCD	NUMBER (1)	Coded	
22.	HT	NUMBER (3)	Feet	
23.	HTCD	NUMBER (2)	Coded	
24.	ACTUALHT	NUMBER (3)	Feet	
25.	TREECLCD	NUMBER (2)	Coded	
26.	CR	NUMBER (3)	Percent	
27.	CCLCD	NUMBER (2)	Coded	
28.	TREEGRCD	NUMBER (2)	Coded	
29.	AGENTCD	NUMBER (2)	Coded	
30.	CULL	NUMBER (3)	Percent	
31.	DAMLOC1	NUMBER (2)	Coded	
32.	DAMTYP1	NUMBER (2)	Coded	
33.	DAMSEV1	NUMBER (2)	Coded	
34.	DAMLOC2	NUMBER (2)	Coded	
35.	DAMTYP2	NUMBER (2)	Coded	
36.	DAMSEV2	NUMBER (2)	Coded	
37.	DECAYCD	NUMBER (2)	Coded	
38.	STOCKING	NUMBER (5,2)	Percent	
39.	WDLDSTEM	NUMBER (3)	Number	
40.	TPACURR	NUMBER (11,6)	Trees/acre	
41.	TPAMORT	NUMBER (11,6)	Trees/acre/yr	
42.	TPAREMV	NUMBER (11,6)	Trees/acre/yr	
43.	TPAGROW	NUMBER (11,6)	Trees/acre	
44.	VOLCFNET	NUMBER (11,6)	Cu ft/tree	
45.	VOLCFGRS	NUMBER (11,6)	Cu ft/tree	
46.	VOLCSNET	NUMBER (11,6)	Cu ft/tree	
47.	VOLCSGRS	NUMBER (11,6)	Cu ft/tree	
48.	VOLBFNET	NUMBER (11,6)	Bd ft/tree	

Column name	Oracle data type	Value or unit of measure	Key data item
49. VOLBFGRS	NUMBER (11,6)	Bd ft/tree	
50. VOLCFSND	NUMBER (11,6)	Cu ft/tree	
51. GROWCFGS	NUMBER (11,6)	Cu ft/year/tree	
52. GROWBFSL	NUMBER (11,6)	Bd ft/year/tree	
53. GROWCFAL	NUMBER (11,6)	Cu ft/year/tree	
54. MORTCFGS	NUMBER (11,6)	Cu ft/tree	
55. MORTBFSL	NUMBER (11,6)	Bd ft/tree	
56. MORTCFAL	NUMBER (11,6)	Cu ft/tree	
57. REMVCFGS	NUMBER (11,6)	Cu ft/tree	
58. REMVBFSL	NUMBER (11,6)	Bd ft/tree	
59. REMVCFAL	NUMBER (11,6)	Cu ft/tree	
60. DRYBIOT	NUMBER (13,6)	Ovendry lbs/tree	
61. DRYBIOM	NUMBER (13,6)	Ovendry lbs/tree	
62. DIACHECK	NUMBER (2)	Coded	
63. MORTYR	NUMBER (4)	Year	

1. TABLENM   Table name. Identifies the table to which the record belongs.

2. STATECD   State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. CYCLE   Inventory cycle number. Identifies the cycle number for the inventory data. For example, a 4 shows the data came from the fourth inventory of that State. A cycle number greater than 1 does not necessarily mean that information for previous cycles resides in the database.

4. SUBCYCLE   Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle shows in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. UNITCD   Survey unit code. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

6. COUNTYCD   County code. Identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

7. PLOT   Plot number. NOTE: Plot numbers are unique within a county for the North Central, Northeastern, and Southern FIA units. Plot numbers are unique within a county/survey unit combination for the Rocky Mountain and Pacific Northwest FIA units.

8. SUBP   Subplot number. Subplot number used to identify on which subplot the tree was measured.

9. TREE   Tree number. A number used to uniquely identify a tree on a subplot.

10. CONDID   Condition number. Each condition mapped on a plot is assigned a number. Condition is defined by owner class and land class. Differences in broad forest type, stand size, stand origin, and stand density further define condition for forest land. Mapped nonforest conditions are also assigned numbers. Once a number has been assigned, the number is reused whenever that same condition is encountered on the plot. Each sample tree is assigned the number of the condition in which it is located.

11. AZIMUTH   Azimuth. The direction (in degrees) from subplot center (microplot center for saplings) to the center of the base of the tree (geographic center for multi-stemmed woodland species). Due north is represented by 360 degrees, not zero degrees.

12. DIST   Horizontal distance. The horizontal distance in feet from subplot center (microplot center for saplings) to the pith at the base of the tree (geographic center for multi-stemmed woodland species).

13. PREVCOND   Previous condition number. Identifies the condition within the plot on which the tree occurred at the previous inventory.

14. PREVSUBC   Previous subcycle number. Identifies the subcycle of the tree's previous condition. (In some instances a plot may have been measured more than once during an inventory cycle. Subcycle is then needed to uniquely identify the previous condition.)

15. STATUSCD   Tree status code. Identifies whether the sample tree is live, cut, or dead. Includes only dead and cut trees required to estimate aboveground biomass and net annual volume for growth, mortality, and removals. NOTE: New and replacement plots use only codes 1 and 2.

Code	Tree status
1	Live
2	Dead
3	Removal: Cut or killed as a result of harvesting or land clearing
4	Missed live tree
5	Missed mortality tree
6	Missed dead tree
7	No history

16. LEANCD   Lean angle code. Describes how much the tree is leaning. New in 1999.

	Code	**Lean angle**
	0	Standing (<45 degrees of lean)
	1	Leaning (at least 45 degrees of lean)
	2	Down (some part of bole touching the ground)
	-1	Unavailable

17. UTILCD — Utilization class code. Identifies trees that have been cut and removed from the site.

	Code	**Utilization class**
	0	Not utilized
	1	Utilized

18. SPCD — Species code. A standard tree species code. Codes for trees in the FIADB are listed in Appendix F.

19. SPGRPCD — Species group code. An FIA species group number. This number is used to produce many of the standard presentation tables. The assignment of individual species (SPCD) to these groups is shown in Appendix G. Individual FIA programs may further break these species groups down for published tables, but this is a common list that all published standard presentation tables must match.

20. DIA — Current diameter. The current diameter (in inches) of the sample tree at the point of diameter measurement. Check the DIAHTCD variable to determine the measurement point. DIA for live trees contains the measured value. DIA for cut and dead trees presents problems associated with uncertainty of when the tree was cut or died as well as structural deterioration of dead trees. Consult individual units for explanations of how DIA is collected for dead and cut trees.

21. DIAHTCD — Code for height of diameter measurement. The height above ground at which the diameter was obtained on the sample tree.

	Code	**Height of diameter**
	1	Breast height
	2	Root collar
	3	Stump

22. HT — Height. The total height of a sample tree (in feet) from the ground to the top of the main stem. The total height of a tree is not always its actual height. If the main stem is broken, the actual height is measured or estimated and the missing piece is added to the actual height. The amount added is determined by measuring the broken piece if it can be located on the ground; otherwise it is estimated. A value of -1 means that total height was not recorded for the tree.

23. HTCD — Height type code. Indicates how height was determined.

	Code	**Height type**
	1	Field measured (total and actual height)
	2	Actual height measured, total height estimated in the field
	3	Estimated visually
	4	Estimated with a model
	-1	Not measured or estimated

24. ACTUALHT   Actual height of tree. The length of the tree to the nearest foot from ground level to the highest remaining portion of the tree still present and attached to the bole. If the actual height is not measured or estimated, the value will be -1.

25. TREECLCD   Tree class code. The general quality of the tree. For cut, dead, and sound dead trees, TREECLCD of the tree at the time it died or was cut is estimated.

Code	Tree class
2	Growing stock: All trees of commercial species, except rough or rotten cull trees.
3	Rough cull: Trees that do not now, or prospectively, have at least one solid 8-foot section, reasonably free of form defect, on the merchantable bole or have 67 percent or more of the merchantable volume cull; more than half of this cull is due to sound dead wood cubic-foot loss or severe form defect volume loss. In California, Oregon, and Washington inventories, 75 percent or more cull, rather than 67 percent or more cull, applies. This class also contains all trees of noncommercial species.
4	Rotten cull: Trees with 67 percent or more of the merchantable volume cull, and more than half of this cull is due to rotten or missing cubic-foot volume loss. PNW uses a 75-percent cutoff.
-1	Not recorded.

26. CR   Compacted crown ratio. The percent of the tree bole supporting live, healthy foliage (the crown is ocularly compacted to fill in gaps) when compared to total height. Expressed as a percent of total tree height.

27. CCLCD   Crown class code. Primarily indicates the amount of sunlight received as opposed to the conventional "crown position" found in forestry textbooks.

Code	Crown class
1	Open grown: Trees with crowns that have received full light from above and from all sides throughout all or most of their life, particularly during early development.
2	Dominant: Trees with crowns extending above the general level of the canopy and receiving full light from above and partly from the sides; larger than the average trees in the stand, and with crowns well developed, but possibly somewhat crowded on the sides.
3	Codominant: Trees with crowns forming part of the general level of the crown cover and receiving full light from above, but comparatively little from the side. Usually with medium crowns more or less crowded on the sides.
4	Intermediate: Trees shorter than those in the preceding two classes, with crowns either below or extending into the canopy formed by the dominant and codominant trees, receiving little direct light from above, and none from the sides; usually with small crowns very crowded on the sides.

5   Overtopped: Trees with crowns entirely below the general canopy level and receiving no direct light either from above or the sides.

-1   Not recorded.

28. TREEGRCD   Tree grade code. Used by eastern FIA units but is not available in the West. This item is nonzero for all sawtimber-size trees regardless of status; however, it is not measured on all sawtimber-size trees on every plot. Sawtimber-size trees that are graded but do not contain a gradeable log are given a tree grade 5. Sawtimber-size trees that are not graded because of sampling design have a tree grade of -1. Trees smaller than sawtimber receive a tree grade of zero. Procedures to grade trees are different for each Eastern FIA program. Western programs do not grade trees.

Code   Tree grade
0   Tree too small to grade
1   Tree grade 1
2   Tree grade 2
3   Tree grade 3
4   Graded and contains a gradeable log but does not meet grade 3 standards
5   Graded but does not contain a gradeable log (local use trees).
-1   Not graded

29. AGENTCD   Damaging agent code. Beginning in 2000, this variable will be collected on only dead and cut trees. Before 2000, this variable was collected on all trees (live, dead, and cut). Cause of damage was recorded for live trees if the presence of damage or pathogen activity was serious enough to reduce the quality or vigor of the tree. When a tree was damaged by more than one agent, the most severe damage was coded. When no damage was observed on a live tree, 00 was recorded. Damage recorded for dead trees was the cause of death. When the cause of death could not be determined for a tree, 99 was recorded. Each FIA program records specific codes that may differ from one State to the next. These codes fall within the ranges listed below. For the specific codes used in a particular State, contact the FIA program responsible for that State.

Code   Cause of damage
00   No serious damage
10-19   Insect
20-29   Disease
30-39   Fire
40-49   Animal
50-59   Weather
60-69   Vegetation (e.g., competition or vines)
70-79   Unknown, not sure, other
80-89   Logging/human
90-99   Physical (e.g., hit by falling tree)
-1   Unavailable

30. CULL   Rotten and missing cull. The percent of the cubic-foot volume in a live or dead tally tree that is rotten or missing.

31. DAMLOC1   Damage location 1 code. Indicates where on the tree damage
                  (meeting or exceeding a severity threshold) is present. New in
                  1999.

Code   Damage location
   0   No damage
   1   Roots (exposed) and stump (up to 12 inches from ground
        level)
   2   Roots, stump, and lower bole
   3   Lower bole (lower half of bole between stump and base of
        live crown)
   4   Lower and upper bole
   5   Upper bole (upper half of bole between stump and base of
        live crown)
   6   Crown stem (main stem within the live crown)
   7   Branches (>1 inch diameter at junction with main stem
        and within the live crown)
   8   Buds and shoots of current year
   9   Foliage
  -1   Not recorded

32. DAMTYP1   Damage type 1 code. Indicates the kind of damage (meeting or
                  exceeding a severity threshold) present. New in 1999.

Code   Damage type
   1   Canker or gall
   2   Conk, fruiting body, or sign of advanced decay
   3   Open wound
   4   Resinosis or gumosis
   5   Crack or seam
  11   Broken bole or broken root within 3 feet of bole
  12   Broom on root or bole
  13   Broken or dead root further than 3 feet from bole
  20   Vines in the crown
  21   Loss of apical dominance, dead terminal
  22   Broken or dead branches
  23   Excessive branching or brooms within the live crown
  24   Damaged shoots, buds, or foliage
  25   Discoloration of foliage
  31   Other
  -1   Not recorded

33. DAMSEV1   Damage severity 1 code. Indicates how much of the tree is af-
                  fected. Legal severity codes vary by damage type and damage
                  location and must exceed a threshold value. New in 1999.

**Code   Damage severity
         (% of location affected)**
   0   1 to 9
   1   10 to 19
   2   20 to 29
   3   30 to 39
   4   40 to 49
   5   50 to 59
   6   60 to 69
   7   70 to 79

<div style="text-align: right;">

8	80 to 89
9	90 to 99
-1	Not recorded

</div>

34. DAMLOC2   Damage location 2 code. Indicates where on the tree secondary damage (meeting or exceeding a severity threshold) is present. Use same codes as DAMLOC1. New in 1999.

35. DAMTYP2   Damage type 2 code. Indicates the kind of secondary damage (meeting or exceeding a severity threshold) present. Use same codes as DAMTYP1. New in 1999.

36. DAMSEV2   Damage severity 2 code. Indicates how much of the tree is affected by the secondary damage. Legal severity codes vary by damage type and damage location and must exceed a threshold value. Use same codes as DAMSEV1. New in 1999.

37. DECAYCD   Dead tree decay code. Indicates the extent of decay in a standing dead tree. New in 1999.

Code	Dead tree decay
1	All limbs and branches are present; the top of the crown is still present; all bark remains; sapwood is intact, with minimal decay; heartwood is sound and hard.
2	There are few limbs and no fine branches; the top may be broken; a variable amount of bark remains; sapwood is sloughing with advanced decay; heartwood is sound at base but beginning to decay in the outer part of the upper bole.
3	Only limb stubs exist; the top is broken; a variable amount of bark remains; sapwood is sloughing; heartwood has advanced decay in upper bole and is beginning at the base.
4	Few or no limb stubs remain; the top is broken; a variable amount of bark remains; sapwood is sloughing; heartwood has advanced decay at the base and is sloughing in the upper bole.
5	No evidence of branches remains; the top is broken; little bark remains; sapwood is gone; heartwood is sloughing throughout.
-1	Not collected.

38. STOCKING   Tree stocking. A relative term used to describe (in percent) the adequacy of a given stand density in meeting a specific management objective. Species or forest type stocking functions were used to assess the stocking contribution of individual trees. These functions, which were developed using stocking guides, relate the area occupied by an individual tree to the area occupied by a tree of the same size growing in a fully stocked stand of like trees. The stocking of individual trees is used in the calculation of GSSTKCD and ALSTKCD on the COND table.

39. WDLDSTEM   Woodland tree species stem count. Used for tree species where diameter is measured at the root collar. For a stem to be counted, it must have a minimum stem size of 1 inch in diameter and 1 foot in length.

40.	TPACURR	Trees per acre. Current number of trees per acre that the tree represents for calculating number of trees on forest land. Total volumes are calculated by summing the product of TPACURR, per tree values (i.e., VOLCFNET, VOLCFGRS, VOLCSNET, VOLCSGRS, VOLBFNET, VOLBFGRS, VOLCFSND, DRYBIOT, or DRYBIOM), and the appropriate area expander from the plot table.
41.	TPAMORT	Mortality trees per acre per year. Number of trees per acre per year that the tree represents for calculating mortality on forest land. Mortality volume per acre per year is calculated by multiplying TPAMORT times MORTCFGS, MORTBFSL, or MORTCFAL for each tree. Total annual mortality volume is calculated by summing the product of the annual per acre mortality and the appropriate area expander from the plot table.
42.	TPAREMV	Removals trees per acre per year. Number of trees per acre per year that the tree represents for calculating removals from forest land. Removal volume per acre per year is calculated by multiplying TPAREMV times REMVCFGS, REMVBFSL, or REMVCFAL for each tree. Total annual removal volume is calculated by summing the product of the annual per acre removal and the appropriate area expander from the plot table.
43.	TPAGROW	Growth trees per acre. Number of trees per acre that the tree represents for calculating growth on forest land. Growth volume per acre per year is calculated by multiplying TPAGROW times GROWCFGS, GROWBFSL, or GROWCFAL for each tree. Total annual growth volume is calculated by summing the product of the annual per acre growth and the appropriate area expander from the plot table.
44.	VOLCFNET	Net cubic-foot volume. The net volume of wood in the central stem of a sample tree 5.0 inches diameter or larger, from a 1-foot stump to a minimum 4-inch top diameter outside bark (DOB), or to where the central stem breaks into limbs all of which are less than 4.0 inches DOB. This is a per tree value and must be multiplied by TPACURR to obtain per acre information. Trees with DIA less than 5.0 inches have zero in this field. All trees measured after 1998 with DIA 5.0 inches or larger (including dead and cut trees) will have entries in this field. Does not include rotten, missing, and form cull.
45.	VOLCFGRS	Gross cubic-foot volume. The total volume of wood in the central stem of a sample tree 5.0 inches diameter or larger, from a 1-foot stump to a minimum 4-inch top DOB, or to where the central stem breaks into limbs all of which are less than 4.0 inches DOB. This is a per tree value and must be multiplied by TPACURR to obtain per acre information. Trees with DIA less than 5.0 inches have zero in this field. All trees measured after 1998 with DIA 5.0 inches or larger (including dead and cut trees) have entries in this field. Includes rotten, missing and form cull.

46. VOLCSNET   Net cubic-foot volume in the saw-log portion. The net volume of wood in the central stem of a sample commercial species tree of sawtimber size (9.0 inches DBH minimum for softwoods, 11.0 inches DBH minimum for hardwoods), from a 1-foot stump to a minimum top DOB (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs, all of which are less than the minimum top DOB. This is a per tree value and must be multiplied by one of the above expansion factors to obtain per acre information. Trees with DIA less than 9.0 inches (11.0 inches for hardwoods) have zero in this field. All larger trees have entries in this field if they are growing-stock trees (TREECLCD=2). All rough and rotten (TREECLCD=3 or 4) trees have zero in this field.

47. VOLCSGRS   Gross cubic-foot volume in the saw-log portion. This is the net volume of wood in the central stem of a sample commercial species tree of sawtimber size (9.0 inches DBH minimum for softwoods, 11.0 inches DBH minimum for hardwoods), from a 1-foot stump to a minimum top DOB (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs, all of which are less than the minimum top DOB. This is a per tree value and must be multiplied by one of the above expansion factors to obtain per acre information. Trees with DIA less than 9.0 inches (11.0 inches for hardwoods), have zero in this field. All larger trees have entries in this field if they are growing-stock trees (TREECLCD=2). All rough and rotten (TREECLCD=3 or 4) trees have zero in this field.

48. VOLBFNET   Net board-foot volume in the saw-log portion. This is the net volume of wood in the central stem of a sample commercial species tree of sawtimber size (9.0 inches DBH minimum for softwoods, 11.0 inches DBH minimum for hardwoods), from a 1-foot stump to a minimum top DOB (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs all of which are less than the minimum top DOB. Volume is based on International 1/4-inch rule. This is a per tree value and must be multiplied by one of the above expansion factors to obtain per unit area information. Trees with DIA less than 9.0 inches (11.0 inches for hardwoods) have zero in this field. All larger trees should have entries in this field if they are growing-stock trees (TREECLCD=2, including cut and dead trees). All rough and rotten (TREECLCD=3 or 4) trees have zero in this field.

49. VOLBFGRS   Gross board-foot volume in the saw-log portion. This is the net volume of wood in the central stem of a sample commercial species tree of sawtimber size (9.0 inches DBH minimum for softwoods, 11.0 inches DBH minimum for hardwoods), from a 1-foot stump to a minimum top DOB (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs all of which are less than the minimum top DOB. Volume is based on International 1/4-inch rule. This is a per tree value and must be multiplied by one of the above expansion factors to obtain per unit area information. Trees with DIA less than 9.0 inches (11.0 inches for hardwoods) have zero in this

field. All larger trees should have entries in this field if they are growing-stock trees (TREECLCD=2, including cut and dead trees). All rough and rotten (TREECLCD=3 or 4) trees have zero in this field.

50. VOLCFSND   Sound cubic-foot volume. The volume of sound wood in the central stem of a sample tree 5.0 inches diameter or larger from a 1-foot stump to a minimum 4-inch top DOB or to where the central stem breaks into limbs all of which are less than 4.0 inches DOB. Form cull but not rotten cull is included. This is a per tree value and must be multiplied by TPACURR to obtain per acre information. Trees with DIA less than 5.0 inches have zero in this field. All trees with DIA 5.0 inches or larger (including dead and cut trees) have entries in this field.

51. GROWCFGS   Net annual merchantable cubic-foot growth of growing-stock tree. This is the net change in cubic-foot volume per year of this tree (for remeasured plots, $(V_2-V_1)/(t_2-t_1)$); where $_1$ and $_2$ denote the past and current measurement, respectively, V is volume, and t indicates year of measurement). Because this value is net growth, it may be a negative number. Negative growth values are usually due to mortality ($V_2=0$) but can also occur on live trees that have a net loss in volume because of damage, rot, or other causes. To expand to a per acre value, multiply by TPAGROW.

52. GROWBFSL   Net annual merchantable board-foot growth of sawtimber tree. This is the net change in board-foot volume per year of this tree (for remeasured plots $(V_2-V_1)/(t_2-t_1)$). Because this value is net growth, it may be a negative number. Negative growth values are usually due to mortality ($V_2=0$) but can also occur on live trees that have a net loss in volume because of damage, rot, or other causes. To expand to a per acre value, multiply by TPAGROW.

53. GROWCFAL   Net annual sound cubic-foot growth of live tree. The net change in cubic-foot volume per year of this tree (for remeasured plots $(V_2-V_1)/(t_2-t_1)$). Because this value is net growth, it may be a negative number. Negative growth values are usually due to mortality ($V_2=0$) but can also occur on live trees that have a net loss in volume because of damage, rot, or other causes. To expand to a per acre value, multiply by TPAGROW. GROWCFAL differs from GROWCFGS by the inclusion of form cull tree volume.

54. MORTCFGS   Cubic-foot volume of a growing-stock tree for mortality purposes. Represents the cubic-foot volume of a growing-stock tree at time of mortality. To obtain estimates of annual per acre mortality, multiply by TPAMORT.

55. MORTBFSL   Board-foot volume of a sawtimber tree for mortality purposes. Represents the board-foot (International 1/4-inch rule) volume of a sawtimber tree at time of mortality. To obtain estimates of annual per acre mortality, multiply by TPAMORT.

56. MORTCFAL   Sound cubic-foot volume of a tree for mortality purposes. Represents the cubic-foot volume of the tree at time of mortality. To obtain estimates of annual per acre mortality, multiply by TPAMORT. MORTCFAL differs from MORTCFGS by the inclusion of form cull tree volume.

57. REMVCFGS   Cubic-foot volume of a growing-stock tree for removal purposes. Represents the cubic-foot volume of the tree at time of removal. To obtain estimates of annual per acre removals, multiply by TPAREMV.

58. REMVBFSL   Board-foot volume of a sawtimber tree for removal purposes. Represents the board-foot (International 1/4-inch rule) volume of the tree at time of removal. To obtain estimates of annual per acre removals, multiply by TPAREMV.

59. REMVCFAL   Sound cubic-foot volume of the tree for removal purposes. Represents the cubic-foot volume of the tree at time of removal. To obtain estimates of annual per acre removals, multiply by TPAREMV. REMVCFAL differs from REMVCFGS by the inclusion of cull tree volume.

60. DRYBIOT   Total gross biomass ovendry weight for live trees. The total aboveground biomass of a sample tree 1.0 inch diameter or larger, including all tops and limbs (but excluding foliage). This is a per tree value and must be multiplied by TPACURR to obtain per acre information. Calculated in ovendry pounds per tree. This field should have an entry for live trees if DIA is 1.0 inch or larger, regardless of TREECLCD; zero otherwise.

61. DRYBIOM   Merchantable stem biomass ovendry weight for live trees. The total gross biomass (including bark) of a tree 5.0 inches DBH or larger from a 1-foot stump to a minimum 4-inch top DOB of the central stem. This is a per tree value and must be multiplied by TPACURR to obtain per acre information. Calculated in ovendry pounds per tree. This field should have an entry for live trees if DIA is 5.0 inches or larger, regardless of TREECLCD; zero otherwise.

62. DIACHECK   Diameter check code. Indicates the reliability of the diameter measurement. New in 1999.

Code   Diameter check
  0   Diameter accurately measured at standard measurement locations (e.g., measured at 4.5', or 3.5' above fork, or at root collar).
  1   Diameter estimated at standard measurement location (e.g., estimated at 4.5' (fused stems, large swell at DBH)).
  2   Diameter accurately measured at non-standard location (e.g., measured just above swells, cankers, etc.).
  3   Diameter estimated at non-standard location (e.g., estimated above butt swell).
  4   Diameter measured at nonstandard location on tree, but not same location as previous measurement (remeasurement trees only).
  5   Diameter modeled in the office.
 -1   Unavailable

63. MORTYR   Mortality year. The year in which a remeasured tree was estimated to have died. New in 1999. A value of -1 means that data are unavailable or that mortality year is not applicable.

Seedling Table (Oracle table name is SEEDLING)

	Column name	Oracle data type	Value or unit of measure	Key data item
1.	TABLENM	VARCHAR2 (8)	SEEDLING	
2.	STATECD	NUMBER (4)	Coded	X
3.	CYCLE	NUMBER (2)	Number	X
4.	SUBCYCLE	NUMBER (2)	Number	X
5.	UNITCD	NUMBER (2)	Coded	X
6.	COUNTYCD	NUMBER (3)	Coded	X
7.	PLOT	NUMBER (5)	Number	X
8.	SUBP	NUMBER (3)	Number	X
9.	CONDID	NUMBER (1)	Number	X
10.	SPCD	NUMBER (3)	Coded	X
11.	SPGRPCD	NUMBER (2)	Coded	
12.	COUNTCD	VARCHAR2 (2)	Coded	
13.	STOCKING	NUMBER (5,2)	Percent	

1. TABLENM   Table name. Identifies the table to which the record belongs.

2. STATECD   State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. CYCLE   Inventory cycle number. Identifies the cycle number for the inventory data. For example, a 4 shows the data came from the fourth inventory of that State. A cycle number greater than 1 does not necessarily mean that information for previous cycles resides in the database.

4. SUBCYCLE   Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle indicates in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. UNITCD   Survey unit number. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

6. COUNTYCD   County code. Identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

7. PLOT   Plot number. NOTE: Plot numbers are unique within a county for the North Central, Northeastern, and Southern FIA units. Plot numbers are unique within a county/survey unit combination for the Rocky Mountain and Pacific Northwest FIA units.

8. SUBP   Subplot number. Subplot number used to identify on which
                   subplot (of the plot) the tree was measured.

9. CONDID   Condition number. Each condition mapped on a plot is assigned
                   a number. Condition is defined by owner class and land class.
                   Differences in broad forest type, stand size, stand origin, and
                   stand density further define condition for forest land. Mapped
                   nonforest conditions are also assigned numbers. Once a number
                   has been assigned, the number is reused whenever that same
                   condition is encountered on the plot. Each sample seedling is
                   assigned the number of the condition in which it is located.

10. SPCD   Species code. A standard tree species code. Codes for trees in the
                   FIADB are listed in Appendix F.

11. SPGRPCD   Species group code. An FIA species group number. This number
                   is used to produce many of the standard presentation tables.
                   Individual species and corresponding tree species group codes
                   are shown in Appendix G. Individual FIA programs may further
                   break these species groups down for published tables, but this is
                   a common list that all published standard presentation tables
                   must match.

12. COUNTCD   Seedling count code. Indicates the number of seedlings (DIA <1.0
                   inches) present on the microplot. Conifer seedlings are at least 6
                   inches tall and hardwood seedlings are at least 12 inches tall.
                   New in 1999.

                   Code Seedling count
                    1   1
                    2   2
                    3   3
                    4   4
                    5   5
                    6+   6 or more

13. STOCKING   Tree stocking. Stocking (in percent) is a relative term used to
                   describe the adequacy of a given stand density in meeting a
                   specific management objective. Species or forest type stocking
                   functions were used to assess the stocking contribution of indi-
                   vidual trees. These functions, which were developed using stock-
                   ing guides, relate the area occupied by an individual tree to the
                   area occupied by a tree of the same size growing in a fully
                   stocked stand of like trees. The stocking of individual trees is
                   used in the calculation of GSSTKCD and ALSTKCD on the COND
                   table.

Site Tree Table (Oracle table name is SITETREE)

Column name	Oracle data type	Value or unit of measure	Key data item
1. TABLENM	VARCHAR2 (8)	SITETREE	
2. STATECD	NUMBER (4)	Coded	X
3. CYCLE	NUMBER (2)	Number	X
4. SUBCYCLE	NUMBER (2)	Number	X
5. UNITCD	NUMBER (2)	Coded	X
6. COUNTYCD	NUMBER (3)	Coded	X
7. PLOT	NUMBER (5)	Number	X
8. CONDID	NUMBER (1)	Number	X
9. TREE	NUMBER (4)	Number	X
10. SPCD	NUMBER (3)	Coded	
11. DIA	NUMBER (5,2)	Inches	
12. HT	NUMBER (3)	Feet	
13. AGEDIA	NUMBER(3)	Years	
14. SPGRPCD	NUMBER (2)	Coded	
15. SITREE	NUMBER (3)	Feet	
16. SIBASE	NUMBER (3)	Years	

1. TABLENM   Table name. Identifies the table to which the record belongs.

2. STATECD   State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. CYCLE   Inventory cycle number. Identifies the cycle number for the inventory data. For example, a 4 shows the data came from the fourth inventory of that State. A cycle number greater than 1 does not necessarily mean that information for previous cycles resides in the database.

4. SUBCYCLE   Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle indicates in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. UNITCD   Survey unit code. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

6. COUNTYCD   County code. Identification number for a county, parish, water-shed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

7. PLOT   Plot number. NOTE: Plot numbers are unique within a county for the North Central, Northeastern, and Southern FIA units. Plot numbers are unique within a county/survey unit combination for the Rocky Mountain and Pacific Northwest FIA units.

8. CONDID   Condition number. Each condition mapped on a plot is assigned a number. Condition is defined by owner class and land class. Differences in broad forest type, stand size, stand origin, and stand density further define condition for forest land. Mapped nonforest conditions are also assigned numbers. Once a number has been assigned, the number is reused whenever that same condition is encountered on the plot. Each site tree is assigned the number of the condition in which it is located.

9. TREE   Tree number. A number used to uniquely identify a site tree on a condition.

10. SPCD   Species code. A standard tree species code. Codes for trees in the FIADB are listed in Appendix F.

11. DIA   Current diameter. The current diameter (in inches) of the tree at the point of diameter measurement.

12. HT   Height. The total height of a sample tree (in feet) from the ground to the top of the main stem.

13. AGEDIA   Age (in years) of tree at the point of diameter measurement (DBH/DRC). Age is determined by an increment sample.

14. SPGRPCD   Species group code. An FIA species group number. Individual species (SPCD) and corresponding tree species group codes are shown in Appendix G.

15. SITREE   Site index. Site index (in feet) of the tree.

16. SIBASE   Site index base age. The base age (in years) of the site index curves used to derive site index.

Boundary Table (Oracle table name is BOUNDARY)

	Column name	Oracle data type	Value or unit of measure	Key data item
1.	TABLENM	VARCHAR2 (8)	BOUNDARY	
2.	STATECD	NUMBER (4)	Coded	X
3.	CYCLE	NUMBER (2)	Number	X
4.	SUBCYCLE	NUMBER (2)	Number	X
5.	UNITCD	NUMBER (2)	Coded	X
6.	COUNTYCD	NUMBER (3)	Coded	X
7.	PLOT	NUMBER (5)	Number	X
8.	SUBP	NUMBER (3)	Number	X
9.	SUBPTYP	NUMBER (1)	Coded	X
10.	BNDCHG	NUMBER (1)	Coded	
11.	CONTRAST	NUMBER (1)	Number	
12.	AZMLEFT	NUMBER (3)	Degrees	X
13.	AZMCORN	NUMBER (3)	Degrees	
14.	DISTCORN	NUMBER (2)	Feet	
15.	AZMRIGHT	NUMBER (3)	Degrees	X

1. TABLENM   Table name. Identifies the table to which the record belongs.

2. STATECD   State code. Bureau of the Census Federal Information Processing Standards (FIPS) two-digit code for each State except Alaska (table 1). Alaska is divided into eight inventory sections (see table 1 for codes).

3. CYCLE   Inventory cycle number. Identifies the cycle number for the inventory data. For example, a 4 shows the data came from the fourth inventory of that State. A cycle number greater than 1 does not necessarily mean that information for previous cycles resides in the database.

4. SUBCYCLE   Inventory subcycle number. For an annual inventory that takes n years to measure all plots, subcycle indicates in which of the n years of the cycle the data were measured. Subcycle is 0 for a periodic inventory.

5. UNITCD   Survey unit code. Forest Inventory and Analysis survey unit identification number. Survey units are usually groups of counties within each State. In some States (especially those in the West), lands from particular owners (e.g., National Forests or Bureau of Land Management) make up a distinct unit. See Appendix C for codes.

6. COUNTYCD   County code. Identification number for a county, parish, water-shed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census, 1990, are used if a single county is represented. See Appendix C for specific codes.

7. PLOT   Plot number. NOTE: Plot numbers are unique within a county for the North Central, Northeastern, and Southern FIA units. Plot numbers are unique within a county/survey unit combination for the Rocky Mountain and Pacific Northwest FIA units.

8. SUBP   Subplot number.

9. SUBPTYP   Subplot type code. Specifies whether the boundary data are for a subplot, microplot, or annular plot.

    Code Subplot type
    1   Subplot boundary
    2   Microplot boundary
    3   Annular plot boundary

10. BNDCHG   Boundary change code. Indicates the relationship between previously recorded and current boundary information.

    Code Boundary change
    0   No change: boundary is the same as indicated on plot map by previous crew.
    1   New boundary, or boundary data have been changed to reflect an actual on-the-ground physical change resulting in a difference from the boundaries recorded.
    2   Boundary has been changed to correct an error from a previous crew.
    3   Boundary has been changed to reflect a change in variable definition.

11. CONTRAST   Contrasting condition. Records the condition class number of the condition class that contrasts with the condition class located at the subplot center (for boundaries on the subplot or annular plot) or at the microplot center (for boundaries on the microplot), e.g., the condition class present on the other side of the boundary.

12. AZMLEFT   Left azimuth. Records the azimuth (in degrees) from the subplot, microplot, or annular plot center to the farthest left point (facing the contrasting condition class) where the boundary intersects the subplot, microplot, or annular plot circumference.

13. AZMCORN   Corner azimuth. Records the azimuth (in degrees) from the subplot, microplot, or annular plot center to a corner or curve in a boundary. If a boundary is best described by a straight line between the two circumference points, then 000 is recorded for AZMCORN.

14. DISTCORN   Corner distance. Records the horizontal distance, to the nearest 1 foot, from the subplot, microplot, or annular plot center to the boundary corner point.

15. AZMRIGHT   Right azimuth. Records the azimuth (in degrees) from subplot, microplot, or annular plot center to the farthest right point (facing the contrasting condition) where the boundary intersects the subplot, microplot, or annular plot circumference.

ALGORITHMS FOR SUMMARIZING DATA

Data in the FIA Database were designed for easy use with most database management systems, statistical packages, and other data summary software. Data are typically provided as comma-delimited ASCII files. Database management systems that support hierarchical data structures, as well as those based on the relational model, can easily process FIADB files. Chapter 3 should give the user of almost any software package the information needed to input an FIADB file into a processing system.

To assist users of FIADB files and to provide them with a benchmark or checkpoint for comparison to their own data processing systems, the FIA units provide a set of tables with each FIADB State file. The tables are a set of the standard presentation tables produced directly from the FIADB file. These standard presentation tables may not match published core tables exactly. Differences will vary by FIA unit and relate to rounding error and the allocation of State-level estimates down to the county level. Users concerned about differences can request an explanation from the FIA unit. Appendix B contains the format of the standard presentation tables produced from an FIADB file.

Users may wish to duplicate the standard presentation tables on their hardware. In doing so, they may find minor differences due to rounding and word length differences between their machines and the machine used to produce the original tables. Users may also want to screen the input data file so that it includes plot and tree records for only a limited geographic area, such as a group of counties. Then they can produce standard presentation tables for only that area.

The procedures or algorithms used to compute various tree-level data and expand them to population-level estimates are provided in tables 2 through 10. Inventories completed before the introduction of the Forest Health Monitoring (FHM) plot design in 1997 were designed to provide estimates of timberland area and growing-stock volume. As a result, a number of forest land statistics will be unavailable until the completion of a State's first inventory using the FHM plot design. In addition, before 1995, tree-level data were not collected on reserved and unproductive forest land. Estimates of growth, removals, and mortality from reserved and unproductive forest land may not be available until the completion of a State's second inventory using the FHM plot design.

Because of these limitations, the algorithms have been divided into three groups:

1) Algorithms that will work on all inventories (tables 2 through 6)
2) Algorithms that will work on inventories completed after 1999 (e.g., volume of all live trees on forest land) (tables 7 through 9)
3) Algorithms that can be applied to the second inventory cycle completed after 1999 (e.g., growth, removals, and mortality of all live trees on forest land) (table 10)

Those familiar with the relational data model and the standard Structured Query Language (SQL) database language available in many database management systems will find it easy to load FIADB files into one of these systems and to retrieve information from a loaded database.

Algorithms That Will Work on All Inventories

All the variables used in these algorithms are defined in Chapter 3. The variable prefixes "p.", "c.", "oc.", and "t." identify the database tables in which the variables reside. The variable prefix for the PLOT table is "p.". The variable prefix for the COND table is "c." for the current cycle and "oc." for the previous cycle. The variable prefix for the TREE table is "t.".

Table 2.—*Algorithms that expand condition-level items to population estimates. Each item is computed by summing the corresponding quantities over all conditions that meet the requirements.*

Units	Type	Calculation	Requirements
Acres	Area of all land and noncensus water	p.expcurr * c.condprop	c.landclcd in (1,2,3)
Acres	Area of forest land	p.expcurr * c.condprop	c.landclcd=1
Acres	Area of timberland	p.expcurr * c.condprop	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6)

Table 3.—*Algorithms that expand tree-level items to population estimates of number of trees 1 inch in diameter or larger on timberland from FIADB tables. Each item is computed by summing the corresponding quantities over all trees that meet the requirements.*

Units	Type	Calculation	Requirements
Trees	Number of all live trees on timberland	p.expvol * t.tpacurr	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1 and t.dia>=1.0
Trees	Number of growing-stock trees on timberland	p.expvol * t.tpacurr	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1 and t.treeclcd=2 and t.dia>=1.0
Trees	Number of rough trees on timberland	p.expvol * t.tpacurr	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1 and t.treeclcd=3 and t.dia>=1.0
Trees	Number of rotten trees on timberland	p.expvol * t.tpacurr	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1 and t.treeclcd=4 and t.dia>=1.0

Table 4.—*Algorithms that expand tree-level items to population estimates of volume of trees on timberland. Each item is computed by summing the corresponding quantities over all trees that meet the requirements.*

Units	Type	Calculation	Requirements
Cuft	Merchantable volume of all live trees on timberland	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1
Cuft	Merchantable volume of growing-stock trees on timberland	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1 and t.treeclcd=2
Cuft	Merchantable volume of rough trees on timberland	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1 and t.treeclcd=3
Cuft	Merchantable volume of rotten trees on timberland	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1 and t.treeclcd=4
Cuft	Merchantable volume in the saw-log portion of growing-stock trees on timberland	p.expvol * t.tpacurr * t.volcsnet	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1
Bdft	Merchantable volume of sawtimber trees on timberland	p.expvol * t.tpacurr * t.volbfnet	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1

Table 5.—*Algorithms that expand tree-level items to population estimates of growth, mortality, or removals on timberland. Each item is computed by summing the corresponding quantities over all trees that meet the requirements.*

Units	Type	Calculation	Requirements
Cuft/year	Net annual merchantable growth of growing-stock trees on timberland	p.expgrow * t.tpagrow * t.growcfgs	(c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6)) or (oc.landclcd=1 and oc.reservcd=0 and oc.siteclcd in (1,2,3,4,5,6))
Cuft/year	Annual merchantable mortality of growing-stock trees on timberland	p.expmort * t.tpamort * t.mortcfgs	(c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6)) or (oc.landclcd=1 and oc.reservcd=0 and oc.siteclcd in (1,2,3,4,5,6))
Cuft/year	Annual merchantable removals of growing-stock trees on timberland	p.expremv * t.tparemv * t.remvcfgs	None
Bdft/year	Net annual merchantable growth of sawtimber trees on timberland	p.expgrow * t.tpagrow * t.growbfsl	(c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6)) or (oc.landclcd=1 and oc.reservcd=0 and oc.siteclcd in (1,2,3,4,5,6))
Bdft/year	Annual merchantable mortality of sawtimber trees on timberland	p.expmort * t.tpamort * t.mortbfsl	(c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6)) or (oc.landclcd=1 and oc.reservcd=0 and oc.siteclcd in (1,2,3,4,5,6))
Bdft/year	Annual merchantable removals of sawtimber trees on timberland	p.expremv * t.tparemv * t.remvbfsl	None

Table 6.—*Algorithms that expand tree-level items to population estimates of biomass of trees on timberland. Each item is computed by summing the corresponding quantities over all trees that meet the requirements.*

Units	Type	Calculation	Requirements
Ovendry lbs.	Gross biomass of all live trees on timberland	p.expvol * t.tpacurr * t.drybiot	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1
Ovendry lbs.	Merchantable biomass of all live trees on timberland	p.expvol * t.tpacurr * t.drybiom	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1

Examples of SQL Statements That Will Work for All Inventories

To calculate the area of all land and noncensus water for the State of Michigan for the fifth inventory cycle (completed in 1993):

```
SELECT      SUM(p.expcurr * c.condprop)
FROM        plot    p,
            cond    c
WHERE       p.statecd=26 AND
            p.cycle=5 AND
            p.statecd=c.statecd AND
            p.cycle=c.cycle AND
            p.subcycle=c.subcycle AND
            p.unitcd=c.unitcd AND
            p.countycd=c.countycd AND
            p.plot=c.plot AND
            (c.landclcd=1 OR c.landclcd=2 OR c.landclcd=3);
```

To calculate the area of forest land for the State of Michigan for the fifth inventory cycle (1993):

```
SELECT      SUM(p.expcurr * c.condprop)
FROM        plot    p,
            cond    c
WHERE       p.statecd=26 AND
            p.cycle=5 AND
            p.statecd=c.statecd AND
            p.cycle=c.cycle AND
            p.subcycle=c.subcycle AND
            p.unitcd=c.unitcd AND
            p.countycd=c.countycd AND
            p.plot=c.plot AND
            c.landclcd=1;
```

To calculate the area of timberland for the State of Michigan for the fifth inventory cycle (1993):

```
SELECT      SUM(p.expcurr * c.condprop)
FROM        plot    p,
            cond    c
WHERE       p.statecd=26 AND
            p.cycle=5 AND
            p.statecd=c.statecd AND
            p.cycle=c.cycle AND
            p.subcycle=c.subcycle AND
            p.unitcd=c.unitcd AND
            p.countycd=c.countycd AND
            p.plot=c.plot AND
            c.landclcd=1 AND
            c.reservcd=0 AND
            c.siteclcd in (1,2,3,4,5,6);
```

To calculate the number of all live white pine trees on timberland in the State of Michigan for the fifth inventory cycle (1993):

```
SELECT      SUM(p.expvol * t.tpacurr)
FROM        plot    p,
            cond    c,
            tree    t
WHERE       p.statecd=26 AND
            p.cycle=5 AND
            p.statecd=c.statecd AND
            p.cycle=c.cycle AND
            p.subcycle=c.subcycle AND
            p.unitcd=c.unitcd AND
            p.countycd=c.countycd AND
            p.plot=c.plot AND
            p.statecd=t.statecd AND
            p.cycle=t.cycle AND
            p.subcycle=t.subcycle AND
            p.unitcd=t.unitcd AND
            p.countycd=t.countycd AND
            p.plot=t.plot AND
            t.condid=c.condid AND
            c.landclcd=1 AND
            c.reservcd=0 AND
            c.siteclcd in (1,2,3,4,5,6) AND
            t.statuscd=1 AND
            t.dia>=1.0 AND
            t.spcd=129;
```

To calculate the merchantable volume of all live white pine trees on timberland in the State of Michigan for the fifth inventory cycle (1993):

```
SELECT      SUM(p.expvol * t.tpacurr * t.volcfnet)
FROM        plot    p,
            cond    c,
            tree    t
WHERE       p.statecd=26 AND
            p.cycle=5 AND
            p.statecd=c.statecd AND
            p.cycle=c.cycle AND
            p.subcycle=c.subcycle AND
            p.unitcd=c.unitcd AND
            p.countycd=c.countycd AND
            p.plot=c.plot AND
            p.statecd=t.statecd AND
            p.cycle=t.cycle AND
            p.subcycle=t.subcycle AND
            p.unitcd=t.unitcd AND
            p.countycd=t.countycd AND
            p.plot=t.plot AND
            t.condid=c.condid AND
            c.landclcd=1 AND
            c.reservcd=0 AND
            c.siteclcd in (1,2,3,4,5,6) AND
            t.statuscd=1 AND
            t.spcd=129;
```

To calculate the net annual merchantable growth of white pine growing-stock trees on timberland in the State of Michigan for the fifth inventory cycle (1980-1992):

```
SELECT      SUM(p.expgrow * t.tpagrow * t.growcfgs)
FROM        plot    p,
            cond    c,
            tree    t,
            cond    oc
WHERE       p.statecd=26 AND
            p.cycle=5 AND
            p.statecd=c.statecd AND
            p.cycle=c.cycle AND
            p.subcycle=c.subcycle AND
            p.unitcd=c.unitcd AND
            p.countycd=c.countycd AND
            p.plot=c.plot AND
            c.statecd=t.statecd AND
            c.cycle=t.cycle AND
            c.subcycle=t.subcycle AND
            c.unitcd=t.unitcd AND
            c.countycd=t.countycd AND
            c.plot=t.plot AND
            c.condid=t.condid AND
            t.statecd=oc.statecd (+) AND
            (t.cycle-1)=oc.cycle (+) AND
            t.prevsubc=oc.subcycle (+) AND
            t.unitcd=oc.unitcd (+) AND
            t.countycd=oc.countycd (+) AND
            t.plot=oc.plot (+) AND
            t.prevcond=oc.condid (+) AND
            ((c.landclcd=1 and c.siteclcd in (1,2,3,4,5,6) and c.reservcd=0) OR
            (oc.landclcd=1 and oc.siteclcd in (1,2,3,4,5,6) and oc.reservcd=0)) AND
            t.spcd=129;
```

NOTE: We need to do an outer join for the COND record because there will be no record in the COND table for the previous cycle if the plot is a new plot (some FIA units modeled growth for new plots). An outer join will cause the value of oc.landclcd (land class from the previous cycle COND record) to be null if a record meeting the requirements is not found.

To calculate the annual merchantable mortality of white pine growing-stock trees on timberland in the State of Michigan for the fifth inventory cycle (1980-1992):

```
SELECT      SUM(p.expmort * t.tpamort * t.mortcfgs)
FROM        plot    p,
            cond    c,
            tree    t,
            cond    oc
WHERE       p.statecd=26 AND
            p.cycle=5 AND
            p.statecd=c.statecd AND
            p.cycle=c.cycle AND
            p.subcycle=c.subcycle AND
            p.unitcd=c.unitcd AND
            p.countycd=c.countycd AND
```

```
        p.plot=c.plot AND
        c.statecd=t.statecd AND
        c.cycle=t.cycle AND
        c.subcycle=t.subcycle AND
        c.unitcd=t.unitcd AND
        c.countycd=t.countycd AND
        c.plot=t.plot AND
        c.condid=t.condid AND
        t.statecd=oc.statecd (+) AND
        (t.cycle-1)=oc.cycle (+) AND
        t.prevsubc=oc.subcycle (+) AND
        t.unitcd=oc.unitcd (+) AND
        t.countycd=oc.countycd (+) AND
        t.plot=oc.plot (+) AND
        t.prevcond=oc.condid (+) AND
        ((c.landclcd=1 and c.siteclcd in (1,2,3,4,5,6) and c.reservcd=0) OR
        (oc.landclcd=1 and oc.siteclcd in (1,2,3,4,5,6) and oc.reservcd=0)) AND
        t.spcd=129;
```

NOTE: We need to do an outer join for the COND record because there will be no record in the COND table for the previous cycle if the plot is a new plot (some FIA units modeled mortality for new plots). An outer join will cause the value of oc.landclcd (land class from the previous cycle COND record) to be null if a record meeting the requirements is not found.

To calculate the annual merchantable removals of white pine growing-stock trees on timberland in the State of Michigan for the fifth inventory cycle (1980-1992):

```
SELECT      SUM(p.expremv * t.tparemv * t.remvcfgs)
FROM        plot    p,
            cond    c,
            tree    t
WHERE       p.statecd=26 AND
            p.cycle=5 AND
            p.statecd=c.statecd AND
            p.cycle=c.cycle AND
            p.subcycle=c.subcycle AND
            p.unitcd=c.unitcd AND
            p.countycd=c.countycd AND
            p.plot=c.plot AND
            c.statecd=t.statecd AND
            c.cycle=t.cycle AND
            c.subcycle=t.subcycle AND
            c.unitcd=t.unitcd AND
            c.countycd=t.countycd AND
            c.plot=t.plot AND
            c.condid=t.condid AND
            t.spcd=129;
```

To calculate the total all live biomass of white pine trees on timberland in the State of Michigan for the fifth inventory cycle (1993):

```
SELECT      SUM(p.expvol * t.tpacurr * t.drybiot)
FROM        plot    p,
            cond    c,
            tree    t
WHERE       p.statecd=26 AND
            p.cycle=5 AND
            p.unitcd=c.unitcd AND
            p.statecd=c.statecd AND
            p.cycle=c.cycle AND
            p.subcycle=c.subcycle AND
            p.countycd=c.countycd AND
            p.plot=c.plot AND
            c.statecd=t.statecd AND
            c.cycle=t.cycle AND
            c.subcycle=t.subcycle AND
            c.unitcd=t.unitcd AND
            c.countycd=t.countycd AND
            c.plot=t.plot AND
            c.condid=t.condid AND
            c.landclcd=1 AND
            c.reservcd=0 AND
            c.siteclcd in (1,2,3,4,5,6) AND
            t.statuscd=1 AND
            t.spcd=129;
```

Algorithms That Will Work on Inventories Completed After 1999

Table 7.—*Algorithms that expand tree-level items to population estimates of number of trees 1 inch in diameter or larger on forest land. Each item is computed by summing the corresponding quantities over all trees that meet the requirements*

Units	Type	Calculation	Requirements
Trees	Number of all live trees on forest land	p.expvol * t.tpacurr	c.landclcd=1 and t.statuscd=1 and t.dia>=1.0
Trees	Number of growing-stock trees on forest land	p.expvol * t.tpacurr	c.landclcd=1 and t.statuscd=1 and t.treeclcd=2 and t.dia>=1.0
Trees	Number of rough trees on forest land	p.expvol * t.tpacurr	c.landclcd=1 and t.statuscd=1 and t.treeclcd=3 and t.dia>=1.0
Trees	Number of rotten trees on forest land	p.expvol * t.tpacurr	c.landclcd=1 and t.statuscd=1 and t.treeclcd=4 and t.dia>=1.0
Trees	Number of standing dead trees over 5 inches in diameter on forest land	p.expvol * t.tpacurr	c.landclcd=1 and t.statuscd=2 and t.leanclcd in (0,1)=2 and t.dia>=5.0

Table 8.—*Algorithms that expand tree-level items to population estimates of volume of trees on forest land. Each item is computed by summing the corresponding quantities over all trees that meet the requirements*

Units	Type	Calculation	Requirements
Cuft	Merchantable volume of all live trees on forest land	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and t.statuscd=1
Cuft	Merchantable volume of growing-stock trees on forest land	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and t.statuscd=1 and t.treeclcd=2
Cuft	Merchantable volume of all live rough trees on forest land	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and t.statuscd=1 and t.treeclcd=3
Cuft	Merchantable volume of all live rotten trees on forest land	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and t.statuscd=1 and t.treeclcd=4
Cuft	Merchantable volume of salvable dead trees on forest land	p.expvol * t.tpacurr * t.volcfnet	c.landclcd=1 and t.statuscd=2
Cuft	Merchantable volume in the saw-log portion of sawtimber trees on forestland	p.expvol * t.tpacurr * t.volcsnet	c.landclcd=1 and t.statuscd=1 and t.treeclcd=2
Bdft	Merchantable volume of sawtimber trees on forest land	p.expvol * t.tpacurr * t.volbfnet	c.landclcd=1 and t.statuscd=1 and t.treeclcd=2
Cuft	Sound volume of all live trees on timberland	p.expvol * t.tpacurr * t.volcfsnd	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1
Cuft	Sound volume of all live trees on forest land	p.expvol * t.tpacurr * t.volcfsnd	c.landclcd=1 and t.statuscd=1
Cuft	Sound volume of all live rough trees on forest land	p.expvol * t.tpacurr * t.volcfsnd	c.landclcd=1 and t.statuscd=1 and t.treeclcd=3
Cuft	Sound volume of all live rotten trees on forest land	p.expvol * t.tpacurr * t.volcfsnd	c.landclcd=1 and t.statuscd=1 and t.treeclcd=4
Cuft	Gross volume of all live trees on timberland	p.expvol * t.tpacurr * t.volcfgrs	c.landclcd=1 and c.reservcd=0 and c.siteclcd in (1,2,3,4,5,6) and t.statuscd=1
Cuft	Gross volume of all live trees on forest land	p.expvol * t.tpacurr * t.volcfgrs	c.landclcd=1 and t.statuscd=1
Cuft	Gross volume in the saw-log portion of saw-timber trees on forest land	p.expvol * t.tpacurr * t.volcsnet	c.landclcd=1 and t.statuscd=1 and t.treeclcd=2
Bdft	Gross volume of saw-timber trees on forest land	p.expvol * t.tpacurr * t.volbfgrs	c.landclcd=1 and t.statuscd=1

Table 9.—*Algorithms that expand tree-level items to population estimates of biomass of trees on forest land. Each item is computed by summing the corresponding quantities over all trees that meet the requirements.*

Units	Type	Calculation	Requirements
Ovendry lbs.	Gross biomass of all live trees on forest land	p.expvol * t.tpacurr * t.drybiot	c.landclcd=1 and t.statuscd=1
Ovendry lbs.	Merchantable biomass of all live trees on forest land	p.expvol * t.tpacurr * t.drybiom	c.landclcd=1 and t.statuscd=1

Examples of SQL Statements That Will Work on Inventories Completed After 1999

To calculate the total number of all live white pine trees on forest land in the State of Michigan for the sixth inventory cycle (estimated year of completion 2004):

```
SELECT      SUM(p.expvol * t.tpacurr)
FROM        plot    p,
            cond    c,
            tree    t
WHERE       p.statecd=26 AND
            p.cycle=6 AND
            p.statecd=c.statecd AND
            p.cycle=c.cycle AND
            p.subcycle=c.subcycle AND
            p.unitcd=c.unitcd AND
            p.countycd=c.countycd AND
            p.plot=c.plot AND
            p.statecd=t.statecd AND
            p.cycle=t.cycle AND
            p.subcycle=t.subcycle AND
            p.unitcd=t.unitcd AND
            p.countycd=t.countycd AND
            p.plot=t.plot AND
            t.condid=c.condid AND
            c.landclcd=1 AND
            t.statuscd=1 AND
            t.dia>=1.0 AND
            t.spcd=129;
```

To calculate the merchantable volume of all live white pine trees on forest land in the State of Michigan for the sixth inventory cycle (estimated year of completion 2004):

```
SELECT      SUM(p.expvol * t.tpacurr * t.volcfnet)
FROM        plot    p,
            cond    c,
            tree    t
WHERE       p.statecd=26 AND
            p.cycle=5 AND
            p.statecd=c.statecd AND
            p.cycle=c.cycle AND
            p.subcycle=c.subcycle AND
            p.unitcd=c.unitcd AND
            p.countycd=c.countycd AND
            p.plot=c.plot AND
            p.statecd=t.statecd AND
            p.cycle=t.cycle AND
            p.subcycle=t.subcycle AND
            p.unitcd=t.unitcd AND
            p.countycd=t.countycd AND
            p.plot=t.plot AND
            t.condid=c.condid AND
            c.landclcd=1 AND
            t.statuscd=1 AND
            t.spcd=129;
```

To calculate the gross biomass of all live white pine trees on forest land in the State of Michigan for the sixth inventory cycle (estimated year of completion 2004):

```
SELECT      SUM(p.expvol * t.tpacurr * t.drybiot)
FROM        plot    p,
            cond    c,
            tree    t
WHERE       p.statecd=26 AND
            p.cycle=6 AND
            p.unitcd=c.unitcd AND
            p.statecd=c.statecd AND
            p.cycle=c.cycle AND
            p.subcycle=c.subcycle AND
            p.countycd=c.countycd AND
            p.plot=c.plot AND
            c.statecd=t.statecd AND
            c.cycle=t.cycle AND
            c.subcycle=t.subcycle AND
            c.unitcd=t.unitcd AND
            c.countycd=t.countycd AND
            c.plot=t.plot AND
            c.condid=t.condid AND
            c.landclcd=1 AND
            t.statuscd=1 AND
            t.spcd=129;
```

Algorithms That can be Applied to the Second Inventory Cycle Completed After 1999

Table 10.—*Algorithms that expand tree-level items to population estimates of growth, mortality or removals of trees on forest land. Each item is computed by summing the corresponding quantities over all trees that meet the requirements.*

Units	Type	Calculation	Requirements
Cuft/year	Net annual growth of all live trees on forest land	p.expgrow * t.tpagrow * t.growcfal	c.landclcd=1 or oc.landclcd=1
Cuft/year	Annual mortality of all live trees on forest land	p.expmort * t.tpamort * t.mortcfal	c.landclcd=1 or oc.landclcd=1
Cuft/year	Annual removals of all live trees on forest land	p.expremv * t.tparemv * t.remvcfal	c.landclcd=1 or oc.landclcd=1
Cuft/year	Net annual growth of growing-stock trees on forest land	p.expgrow * t.tpagrow * t.growcfgs	c.landclcd=1 or oc.landclcd=1
Cuft/year	Annual mortality of growing-stock trees on forest land	p.expmort * t.tpamort * t.mortcfgs	c.landclcd=1 or oc.landclcd=1
Cuft/year	Annual removals of growing-stock trees on forest land	p.expremv * t.tparemv * t.remvcfgs	c.landclcd=1 or oc.landclcd=1
Bdft/year	Net annual growth of saw-timber trees on forest land	p.expgrow * t.tpagrow * t.growbfsl	c.landclcd=1 or oc.landclcd=1
Bdft/year	Annual mortality of saw-timber trees on forest land	p.expmort * t.tpamort * t.mortbfsl	c.landclcd=1 or oc.landclcd=1
Bdft/year	Annual removals of saw-timber trees on forest land	p.expremv * t.tparemv * t.remvbfsl	c.landclcd=1 or oc.landclcd=1

Examples of SQL Statements That can be Applied to the Second Inventory Cycle Completed After 1999

To calculate the net annual growth of all live white pine trees on forest land in the State of Michigan for the seventh inventory cycle (estimated year of completion 2009):

```
SELECT      SUM(p.expgrow * t.tpagrow * t.growcfal)
FROM        plot    p,
            cond    c,
            tree    t,
            cond    oc
WHERE       p.statecd=26 AND
            p.cycle=7 AND
            p.statecd=c.statecd AND
            p.cycle=c.cycle AND
            p.subcycle=c.subcycle AND
            p.unitcd=c.unitcd AND
            p.countycd=c.countycd AND
            p.plot=c.plot AND
            c.statecd=t.statecd AND
            c.cycle=t.cycle AND
            c.subcycle=t.subcycle AND
            c.unitcd=t.unitcd AND
            c.countycd=t.countycd AND
            c.plot=t.plot AND
            c.condid=t.condid AND
```

```
                    t.statecd=oc.statecd (+) AND
                    (t.cycle-1)=oc.cycle (+) AND
                    t.prevsubc=oc.subcycle (+) AND
                    t.unitcd=oc.unitcd (+) AND
                    t.countycd=oc.countycd (+) AND
                    t.plot=oc.plot (+) AND
                    t.prevcond=oc.condid (+) AND
                    (c.landclcd=1 OR
                    oc.landclcd=1) AND
                    t.spcd=129;
```

To calculate the annual mortality of all live white pine trees on forest land in the State of Michigan for the seventh inventory cycle (estimated year of completion 2009):

```
SELECT      SUM(p.expmort * t.tpamort * t.mortcfal)
FROM        plot    p,
            cond    c,
            tree    t,
            cond    oc
WHERE       p.statecd=26 AND
            p.cycle=7 AND
            p.statecd=c.statecd AND
            p.cycle=c.cycle AND
            p.subcycle=c.subcycle AND
            p.unitcd=c.unitcd AND
            p.countycd=c.countycd AND
            p.plot=c.plot AND
            c.statecd=t.statecd AND
            c.cycle=t.cycle AND
            c.subcycle=t.subcycle AND
            c.unitcd=t.unitcd AND
            c.countycd=t.countycd AND
            c.plot=t.plot AND
            c.condid=t.condid AND
            t.statecd=oc.statecd (+) AND
            (t.cycle-1)=oc.cycle (+) AND
            t.prevsubc=oc.subcycle (+) AND
            t.unitcd=oc.unitcd (+) AND
            t.countycd=oc.countycd (+) AND
            t.plot=oc.plot (+) AND
            t.prevcond=oc.condid (+) AND
            (c.landclcd=1 OR
            oc.landclcd=1) AND
            t.spcd=129;
```

To calculate the annual removals of all live white pine trees on forest land in the State of Michigan for the seventh inventory cycle (estimated year of completion 2009):

```
SELECT      SUM(p.expremv * t.tparemv * t.remvcfal)
FROM        plot    p,
            cond    c,
            tree    t,
            cond    oc
WHERE       p.statecd=26 AND
            p.cycle=7 AND
            p.statecd=c.statecd AND
            p.cycle=c.cycle AND
            p.subcycle=c.subcycle AND
            p.unitcd=c.unitcd AND
            p.countycd=c.countycd AND
            p.plot=c.plot AND
            c.statecd=t.statecd AND
            c.cycle=t.cycle AND
            c.subcycle=t.subcycle AND
            c.unitcd=t.unitcd AND
            c.countycd=t.countycd AND
            c.plot=t.plot AND
            c.condid=t.condid AND
            t.statecd=oc.statecd (+) AND
            (t.cycle-1)=oc.cycle (+) AND
            t.prevsubc=oc.subcycle (+) AND
            t.unitcd=oc.unitcd (+) AND
            t.countycd=oc.countycd (+) AND
            t.plot=oc.plot (+) AND
            t.prevcond=oc.condid (+) AND
            (c.landclcd=1 OR
            oc.landclcd=1) AND
            t.spcd=129;
```

LITERATURE CITED

Hansen, Mark H.; Frieswyk, Thomas; Glover, Joseph F.; Kelly, John F. 1992. **The Eastwide forest inventory data base: users manual**. Gen. Tech. Rep. NC-151. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 48 p.

Woudenberg, Sharon W.; Farrenkopf, Thomas O. 1995. **The Westwide forest inventory data base: user's manual**. Gen. Tech. Rep. INT-GTR-317. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 67 p.

INDEX OF COLUMN NAMES

The following table lists column names used in the database tables, their location within the table, and a short description of the variable.

Column name	Table name	Location in table	Description
ACTUALHT	TREE	24	Actual height of tree.
ADFORCD	COND	15	Administrative forest.
AGEDIA	SITETREE	13	Age of tree at the point of diameter measurement (DBH/DRC).
AGENTCD	TREE	29	Damaging agent.
ALSTKCD	COND	32	All live stocking.
ASPECT	SUBPLOT	12	Subplot aspect.
ASPECT	COND	29	Aspect.
AZIMUTH	TREE	11	Azimuth.
AZMCORN	BOUNDARY	13	Corner azimuth.
AZMLEFT	BOUNDARY	12	Left azimuth.
AZMRIGHT	BOUNDARY	15	Right azimuth.
BNDCHG	BOUNDARY	10	Boundary change.
CCLCD	TREE	27	Crown class.
CENSUSYR	SURVEY	9	Census year.
CONDID	COND	8	Condition number.
CONDID	SEEDLING	9	Condition number.
CONDID	SITETREE	8	Condition number.
CONDID	TREE	10	Condition number.
CONDPROP	COND	9	Condition proportion.
CONGCD	PLOT	36	Congressional District.
CONTRAST	BOUNDARY	11	Contrasting condition.
COUNTCD	SEEDLING	12	Seedling count.
COUNTYCD	BOUNDARY	6	County code.
COUNTYCD	COND	6	County code.
COUNTYCD	COUNTY	4	County code.
COUNTYCD	PLOT	6	County code.
COUNTYCD	SEEDLING	6	County code.
COUNTYCD	SITETREE	6	County code.
COUNTYCD	SUBPLOT	6	County code.
COUNTYCD	TREE	6	County code.
COUNTYNM	COUNTY	5	County name.
CR	TREE	26	Compacted crown ratio.
CULL	TREE	30	Rotten and missing cull.
CYCLE	BOUNDARY	3	Inventory cycle number.
CYCLE	COND	3	Inventory cycle number.
CYCLE	PLOT	3	Inventory cycle number.
CYCLE	SEEDLING	3	Inventory cycle number.
CYCLE	SITETREE	3	Inventory cycle number.
CYCLE	SUBPLOT	3	Inventory cycle number.
CYCLE	SURVEY	3	Inventory cycle number.
CYCLE	TREE	3	Inventory cycle number.
DAMLOC1	TREE	31	Damage location 1.
DAMLOC2	TREE	34	Damage location 2.
DAMSEV1	TREE	33	Damage severity 1.
DAMSEV2	TREE	36	Damage severity 2.
DAMTYP1	TREE	32	Damage type 1.

Column name	Table name	Location in table	Description
DAMTYP2	TREE	35	Damage type 2.
DECAYCD	TREE	37	Dead tree decay.
DESIGNCD	PLOT	13	Plot design.
DIA	SITETREE	11	Current diameter.
DIA	TREE	20	Current diameter.
DIACHECK	TREE	62	Diameter check.
DIAHTCD	TREE	21	Height of diameter measurement.
DIST	TREE	12	Horizontal distance.
DISTCORN	BOUNDARY	14	Corner distance.
DRYBIOM	TREE	61	Merchantable stem biomass ovendry weight for live trees.
DRYBIOT	TREE	60	Total gross biomass ovendry weight for live trees.
DSTRBCD1	COND	34	Disturbance 1.
DSTRBCD2	COND	36	Disturbance 2.
DSTRBCD3	COND	38	Disturbance 3.
DSTRBYR1	COND	35	Year of disturbance 1.
DSTRBYR2	COND	37	Year of disturbance 2.
DSTRBYR3	COND	39	Year of disturbance 3.
ECOSUBCD	PLOT	35	Ecological subsection.
ELEV	PLOT	24	Elevation.
EXPCHNG	PLOT	32	Periodic change expansion factor.
EXPCURR	PLOT	25	Current expansion factor.
EXPGROW	PLOT	27	Growth expansion factor.
EXPMORT	PLOT	29	Mortality expansion factor.
EXPREMV	PLOT	31	Removals expansion factor.
EXPVOL	PLOT	26	Volume expansion factor.
FLDSZCD	COND	21	Stand-size class assigned by the field crew.
FLDTYPCD	COND	17	Forest type of the condition assigned by the field crew.
FORINDCD	COND	14	Private owner industrial status.
FORTYPCD	COND	16	Forest type of the condition derived by algorithm.
GROWBFSL	TREE	52	Net annual merchantable board-foot growth of sawtimber tree.
GROWCD	PLOT	28	Type of annual volume growth.
GROWCFAL	TREE	53	Net annual sound cubic-foot growth of live tree.
GROWCFGS	TREE	51	Net annual merchantable cubic-foot growth of growing-stock tree.
GSSTKCD	COND	31	Growing-stock stocking.
HT	SITETREE	12	Height.
HT	TREE	22	Height.
HTCD	TREE	23	Height type.
INVYR	SURVEY	7	Inventory year.
KINDCD	PLOT	12	Plot kind.
LANDCLCD	COND	10	Land class.
LAT	PLOT	22	Latitude NAD 83 datum.
LEANCD	TREE	16	Lean angle.
LON	PLOT	23	Longitude NAD 83 datum.
MANUAL	PLOT	37	Field manual version.
MAPDEN	COND	18	Change in tree density.
MEASDAY	PLOT	10	Measurement day.
MEASMON	PLOT	9	Measurement month.
MEASYEAR	PLOT	8	Measurement year.
MICRCOND	SUBPLOT	10	Microplot center condition.
MODDATE	SURVEY	8	Date the data were last modified for this State, cycle, and subcycle.
MORTBFSL	TREE	55	Board-foot volume of a sawtimber tree for mortality purposes.

Column name	Table name	Location in table	Description
MORTCD	PLOT	30	Type of annual mortality volume.
MORTCFAL	TREE	56	Sound cubic-foot volume of a tree for mortality purposes.
MORTCFGS	TREE	54	Cubic-foot volume of a growing-stock tree for mortality purposes.
MORTYR	TREE	63	Mortality year.
NFSYR	SURVEY	10	National Forest System Area Control Year.
NFYEAR	COND	48	Nonforest year.
NOTES	SURVEY	13	An optional item where notes about the inventory may be stored.
NUMPANEL	SURVEY	12	Number of panels.
OWNCD	COND	12	Owner class.
OWNGRPCD	COND	13	Ownership group class.
P2PANEL	PLOT	33	Phase 2 panel number.
P3PANEL	PLOT	34	Phase 3 panel number.
PASTNFCD	COND	46	Past nonforest/inaccessible land use.
PHYSCLCD	COND	30	Physiographic class.
PLOT	BOUNDARY	7	Plot number.
PLOT	COND	7	Plot number.
PLOT	PLOT	7	Plot number.
PLOT	SEEDLING	7	Plot number.
PLOT	SITETREE	7	Plot number.
PLOT	SUBPLOT	7	Plot number.
PLOT	TREE	7	Plot number.
PRESNFCD	COND	47	Present nonforest land use.
PREVCOND	TREE	13	Previous condition number.
PREVSUBC	TREE	14	Previous subcycle number.
PUBUSECD	PLOT	17	Public use restrictions.
RDCD	PLOT	14	Trails or roads.
RDDISTCD	PLOT	15	Distance to improved road.
RDUSECD	PLOT	16	Road use restrictions.
REMPER	PLOT	11	Remeasurement period.
REMVBFSL	TREE	58	Board-foot volume of a sawtimber tree for removal purposes.
REMVCFAL	TREE	59	Sound cubic-foot volume of the tree for removal purposes.
REMVCFGS	TREE	57	Cubic-foot volume of a growing-stock tree for removal purposes.
RESERVCD	COND	11	Reserved status class.
REUSECD1	PLOT	18	Recreation use code 1.
REUSECD2	PLOT	19	Recreation use code 2.
REUSECD3	PLOT	20	Recreation use code 3.
RSCD	SURVEY	11	Region or Station ID.
SIBASE	COND	24	Site index base age.
SIBASE	SITETREE	16	Site index base age.
SICOND	COND	23	Site index.
SISP	COND	25	Site index species.
SITECLCD	COND	22	Site productivity class.
SITREE	SITETREE	15	Site index.
SLOPE	COND	28	Slope.
SLOPE	SUBPLOT	11	Subplot slope.
SPCD	SEEDLING	10	Species code.
SPCD	SITETREE	10	Species code.
SPCD	TREE	18	Species code.
SPGRPCD	SEEDLING	11	Species group.
SPGRPCD	SITETREE	14	Species group.
SPGRPCD	TREE	19	Species group.

Column name	Table name	Location in table	Description
STATEAB	SURVEY	5	State abbreviation.
STATECD	BOUNDARY	2	State code.
STATECD	COND	2	State code.
STATECD	COUNTY	2	State code.
STATECD	PLOT	2	State code.
STATECD	SEEDLING	2	State code.
STATECD	SITETREE	2	State code.
STATECD	SUBPLOT	2	State code.
STATECD	SURVEY	2	State code.
STATECD	TREE	2	State code.
STATENM	SURVEY	6	State name.
STATUSCD	TREE	15	Tree status.
STDAGE	COND	19	Stand age.
STDORGCD	COND	26	Stand origin.
STDORGSP	COND	27	Stand origin species.
STDSZCD	COND	20	Stand-size class derived by algorithm.
STOCKING	SEEDLING	13	Tree stocking.
STOCKING	TREE	38	Tree stocking.
SUBCYCLE	BOUNDARY	4	Inventory subcycle number.
SUBCYCLE	COND	4	Inventory subcycle number.
SUBCYCLE	PLOT	4	Inventory subcycle number.
SUBCYCLE	SEEDLING	4	Inventory subcycle number.
SUBCYCLE	SITETREE	4	Inventory subcycle number.
SUBCYCLE	SUBPLOT	4	Inventory subcycle number.
SUBCYCLE	SURVEY	4	Inventory subcycle number.
SUBCYCLE	TREE	4	Inventory subcycle number.
SUBP	BOUNDARY	8	Subplot number.
SUBP	SEEDLING	8	Subplot number.
SUBP	SUBPLOT	8	Subplot number.
SUBP	TREE	8	Subplot number.
SUBPCOND	SUBPLOT	9	Subplot center condition.
SUBPTYP	BOUNDARY	9	Subplot type.
TABLENM	BOUNDARY	1	Table name.
TABLENM	COND	1	Table name.
TABLENM	COUNTY	1	Table name.
TABLENM	PLOT	1	Table name.
TABLENM	SEEDLING	1	Table name.
TABLENM	SITETREE	1	Table name.
TABLENM	SUBPLOT	1	Table name.
TABLENM	SURVEY	1	Table name.
TABLENM	TREE	1	Table name.
TPACURR	TREE	40	Trees per acre.
TPAGROW	TREE	43	Growth trees per acre.
TPAMORT	TREE	41	Mortality trees per acre per year.
TPAREMV	TREE	42	Removals trees per acre per year.
TREE	SITETREE	9	Tree number.
TREE	TREE	9	Tree number.
TREECLCD	TREE	25	Tree class.
TREEGRCD	TREE	28	Tree grade.
TRTCD1	COND	40	Stand treatment 1.
TRTCD2	COND	42	Stand treatment 2.
TRTCD3	COND	44	Stand treatment 3.
TRTOPCD	COND	33	Treatment opportunity class.
TRTYR1	COND	41	Treatment year 1.

Column name	Table name	Location in table	Description
TRTYR2	COND	43	Treatment year 2.
TRTYR3	COND	45	Treatment year 3.
UNITCD	BOUNDARY	5	Survey unit number.
UNITCD	COND	5	Survey unit number.
UNITCD	COUNTY	3	Survey unit number.
UNITCD	PLOT	5	Survey unit number.
UNITCD	SEEDLING	5	Survey unit number.
UNITCD	SITETREE	5	Survey unit number.
UNITCD	SUBPLOT	5	Survey unit number.
UNITCD	TREE	5	Survey unit number.
UNITNM	COUNTY	6	Unit name.
UTILCD	TREE	17	Utilization class.
VOLBFGRS	TREE	49	Gross board-foot volume in the saw-log portion.
VOLBFNET	TREE	48	Net board-foot volume in the saw-log portion.
VOLCFGRS	TREE	45	Gross cubic-foot volume.
VOLCFNET	TREE	44	Net cubic-foot volume.
VOLCFSND	TREE	50	Sound cubic-foot volume.
VOLCSGRS	TREE	47	Gross cubic-foot volume in the saw-log portion.
VOLCSNET	TREE	46	Net cubic-foot volume in the saw-log portion.
WATERCD	PLOT	21	Water on plot.
WATERDEP	SUBPLOT	13	Water or snow depth.
WDLDSTEM	TREE	39	Woodland tree species stem count.

FIADB STANDARD PRESENTATION TABLES

This appendix contains examples of the standard presentation tables that are included in all FIA inventory reports. Tables in reports may sometimes differ slightly from the basic format because of regional differences and local needs and problems. Classes that do not contain any data may not be reported. For example, in Iowa, there is no National Forest land, so a column headed "National Forest" will not appear in any table by ownership class. In some regions, more detailed data may be important, so a heading may be broken down into subheadings. For example, in the South, it is important to distinguish between natural and planted pines. The pine species and forest type headings for standard presentation tables in many Southern States will be broken down further to meet the need for more specific data. In some instances, data may not always be available at the county level, and county data may need to be combined under broader headings. Variations should not be drastic enough to compromise the standardization of the tables.

Table 1.—*Area of land by county and major land-use class, (reporting area), (date)*
(In thousand acres)

| County | Total land area | Forest land | | | | Other land |
		Total forest	Timberland	Reserved forest land	Other forest land	
County 1	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 2	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 3	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
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Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 2.—*Area of timberland by county and ownership class, (reporting area), (date)*
(In thousand acres)

County	All ownerships	National forest	Other federal	State	County and municipal	Indian	Forest industry	Individual	Corporate
County 1	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 2	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 3	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
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Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 3.—*Area of timberland by county and forest type group, (reporting area), (date)*
(In thousand acres)

| County | Total | Forest type group | | | | | | |
		White-red-jack pine	Spruce-fir	Oak-hickory	Elm-ash-cottonwood	Maple-beech-birch	Aspen-birch	Non-stocked
County 1	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 2	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 3	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
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Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 4.—*Area of timberland by county and stand-size class, (reporting area), (date)*
(In thousand acres)

| County | All stands | Stand-size class | | | |
		Sawtimber	Poletimber	Sapling-seedling	Nonstocked
County 1	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 2	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 3	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
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Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 5.—*Area of timberland by county and potential productivity class, (reporting area), (date)*
(In thousand acres)

| County | All classes | Potential productivity class (cubic feet of growth per acre per year) | | | | |
		165+	120 - 164	85 - 119	50 - 84	20 - 49
County 1	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 2	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 3	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
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.	.	.	.	.	.	.
Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 6.—*Area of timberland by county and stocking class of growing-stock trees, (reporting area), (date)*
(In thousand acres)

| | | Stocking class of growing-stock trees | | | | |
County	All classes	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked
County 1	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 2	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County 3	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
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Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 7.—*Area of timberland by forest type group and ownership class, (reporting area), (date)*
(In thousand acres)

| | | Ownership class | | | | | | | |
Forest type group	All ownerships	National forest	Other federal	State	County and municipal	Indian	Forest industry	Individual	Corporate
White-red-jack pine	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Spruce-fir	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Oak-hickory	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Elm-ash-cottonwood	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Maple-beech-birch	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Aspen-birch	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Nonstocked	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 8.—*Area of timberland by ownership class and stocking class of growing-stock trees, (reporting area), (date)*

(In thousand acres)

| | | Stocking class of growing-stock trees | | | | |
Ownership class	All classes	Nonstocked	Poorly stocked	Moderately stocked	Fully stocked	Over-stocked
National forest	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Other federal	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
State	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
County and municipal	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Indian	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Forest industry	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Corporate	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Individual	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
All ownerships	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 9.—Area of timberland by forest type group and stand-size class, (reporting area), (date)
(In thousand acres)

		Stand-size class			
Forest type group	All stands	Sawtimber	Poletimber	Seedling-sapling	Nonstocked
White-red-jack pine	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Spruce-fir	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Oak-hickory	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Elm-ash-cottonwood	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Maple-beech-birch	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Aspen-birch	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Nonstocked	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x
Total	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x	x,xxx.x

Table 10.—Number of all live trees on timberland by species group and diameter class, (reporting area), (date)
(In thousand trees)

		Diameter class (inches)											
Species group	All classes	1.0 - 2.9	3.0 - 4.9	5.0 - 6.9	7.0 - 8.9	9.0 - 10.9	11.0 - 12.9	13.0 - 14.9	15.0 - 16.9	17.0 - 18.9	19.0 - 20.9	21.0 - 28.9	29.0+
Longleaf and slash pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 11.—Number of growing-stock trees on timberland by species group and diameter class, (reporting area), (date)

(In thousand trees)

Species group	All classes	Diameter class (inches)											
		1.0 - 2.9	3.0 - 4.9	5.0 - 6.9	7.0 - 8.9	9.0 - 10.9	11.0 - 12.9	13.0 - 14.9	15.0 - 16.9	17.0 - 18.9	19.0 - 20.9	21.0 - 28.9	29.0+
Longleaf and slash pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 12.—Merchantable volume of growing-stock trees on timberland by species group and diameter class, (reporting area), (date)

(In thousand cubic feet)

Species group	All classes	Diameter class (inches)									
		5.0 - 6.9	7.0 - 8.9	9.0 - 10.9	11.0 - 12.9	13.0 - 14.9	15.0 - 16.9	17.0 - 18.9	19.0 - 20.9	21.0 - 28.9	29.0+
Longleaf and slash pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 13.—*Merchantable volume in the saw-log portion of growing-stock trees on timberland by species group and diameter class, (reporting area), (date)*

(In thousand cubic feet)

| Species group | All classes | Diameter class (inches) | | | | | | | |
		9.0 - 10.9	11.0 - 12.9	13.0 - 14.9	15.0 - 16.9	17.0 - 18.9	19.0 - 20.9	21.0 - 28.9	29.0+
Longleaf and slash pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
-	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
-	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
-	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 14.—*Merchantable volume of sawtimber trees on timberland by species group and diameter class, (reporting area), (date)*

(In thousand board feet)

| Species group | All classes | Diameter class (inches) | | | | | | | |
		9.0 - 10.9	11.0 - 12.9	13.0 - 14.9	15.0 - 16.9	17.0 - 18.9	19.0 - 20.9	21.0 - 28.9	29.0+
Longleaf and slash pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
-	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
-	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
-	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 15.—*Merchantable volume of growing-stock trees and sawtimber trees on timberland by county and major species group, (reporting area), (date)*

| County | Growing stock (thousand cubic feet) | | | | | Sawtimber (thousand board feet) | | | | |
| | All species | Pine | Major species group | | | All species | Pine | Major species group | | |
			Other softwoods	Soft hardwoods	Hard hardwoods			Other softwoods	Soft hardwoods	Hard hardwoods
County 1	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County 2	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County 3	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 16.—*Merchantable volume of all live and dead trees on timberland by class of timber and major species group, (reporting area), (date)*

(In thousand cubic feet)

Class of timber	All species	Major species group			
		Pine	Other softwoods	Soft hardwoods	Hard hardwoods
Live trees					
Growing-stock trees					
Sawtimber					
Saw-log portion	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Upper stem portion	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Poletimber	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
All growing-stock trees	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Cull trees					
Rough trees					
Sawtimber size	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Poletimber size	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Rotten trees					
Sawtimber size	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Poletimber size	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
All cull trees	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
All live trees	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Salvable dead trees					
Sawtimber size	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Poletimber size	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
All salvable dead trees	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
All classes of timber	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 17.—Merchantable volume of all live trees and growing-stock trees on timberland by ownership class and major species group, (reporting area), (date)

(In thousand cubic feet)

| Ownership class | All live trees | | | | | Growing-stock trees | | | | |
| | All species | Pine | Other softwoods | Soft hardwoods | Hard hardwoods | All species | Pine | Other softwoods | Soft hardwoods | Hard hardwoods |
		Major species group					**Major species group**			
National forest	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other federal	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
State	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County and municipal	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Indian	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Forest industry	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Corporate	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Individual	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 18.—Merchantable volume of growing-stock trees on timberland by forest type group and major species group, (reporting area), (date)

(In thousand cubic feet)

| Forest type group | All species | Pine | Other softwoods | Soft hardwoods | Hard hardwoods |
		Major species group			
White-red-jack pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Spruce-fir	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Oak-hickory	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Elm-ash-cottonwood	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Maple-beech-birch	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Aspen-birch	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Nonstocked	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 19.—Net annual merchantable growth of growing-stock trees and sawtimber trees on timberland by county and major species group, (reporting area), (date)

| | Growing stock (in thousand cubic feet) | | | | | Sawtimber (in thousand board feet) | | | | |
| | | Species group | | | | | Species group | | | |
County	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods
County 1	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County 2	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County 3	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 20.—Annual merchantable removals of growing-stock trees and sawtimber trees on timberland by county and major species group, (reporting area), (date)

| | Growing stock (thousand cubic feet) | | | | | Sawtimber (thousand board feet) | | | | |
| | | Major species group | | | | | Major species group | | | |
County	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods
County 1	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County 2	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County 3	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 21.—*Net annual merchantable growth and annual merchantable removals of growing-stock trees and sawtimber trees on timberland by species group, (reporting area), (date)*

Species group	Growing stock (thousand cubic feet)		Sawtimber (thousand board feet)	
	Average net annual growth	Average annual removals	Average net annual growth	Average annual removals
Longleaf and slash pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 22.—*Annual merchantable mortality of growing-stock trees and sawtimber trees on timberland by species group, (reporting area), (date)*

Species group	Growing stock (Thousand cubic feet)	Sawtimber (Thousand board feet)
Longleaf and slash pine	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx

Table 23.—Net annual merchantable growth and annual merchantable removals of growing-stock trees on timberland by ownership class and major species group, (reporting area), (date)

Ownership class	Growth					Removals				
	All species	Major species group				All species	Major species group			
		Pine	Other softwoods	Soft hardwoods	Hard hardwoods		Pine	Other softwoods	Soft hardwoods	Hard hardwoods
National forest	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other federal	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
State	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County and municipal	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Indian	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Forest industry	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Individual	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Corporate	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
All ownerships	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 24.—Net annual merchantable growth and annual merchantable removals of sawtimber trees on timberland by ownership class and major species group, (reporting area), (date)

Ownership class	Growth					Removals				
	All species	Major species group				All species	Major species group			
		Pine	Other softwoods	Soft hardwoods	Hard hardwoods		Pine	Other softwoods	Soft hardwoods	Hard hardwoods
National forest	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other federal	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
State	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
County and municipal	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Indian	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Forest industry	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Individual	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Corporate	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
All ownerships	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

Table 25.—Total gross biomass ovendry weight for live trees on timberland by species group and diameter class, (reporting area), (date)

(In thousand pounds)

Species group	All classes	1.0 - 2.9	3.0 - 4.9	5.0 - 6.9	7.0 - 8.9	9.0 - 10.9	11.0 - 12.9	13.0 - 14.9	15.0 - 16.9	17.0 - 18.9	19.0 - 20.9	21.0 - 28.9	29.0+
Longleaf and slash pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Loblolly and shortleaf pine	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Other yellow pines	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
.	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx
Total	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx	xxx,xxx

STATE, SURVEY UNIT, AND COUNTY CODES

01   Alabama

01   Southwest-South

003   Baldwin
039   Covington
053   Escambia
097   Mobile
129   Washington

02   Southwest-North

023   Choctaw
025   Clarke
035   Conecuh
091   Marengo
099   Monroe
119   Sumter
131   Wilcox

03   Southeast

001   Autauga
005   Barbour
011   Bullock
013   Butler
017   Chambers
021   Chilton
031   Coffee
041   Crenshaw
045   Dale
047   Dallas
051   Elmore
061   Geneva
067   Henry
069   Houston
081   Lee
085   Lowndes
087   Macon
101   Montgomery
109   Pike
113   Russell
123   Tallapoosa

04   West Central

007   Bibb
057   Fayette
063   Greene
065   Hale
075   Lamar
093   Marion
105   Perry
107   Pickens
125   Tuscaloosa

05   North Central

009   Blount
015   Calhoun
019   Cherokee
027   Clay
029   Cleburne
037   Coosa
043   Cullman
055   Etowah
073   Jefferson
111   Randolph
115   St. Clair
117   Shelby
121   Talladega
127   Walker
133   Winston

06   North

033   Colbert
049   DeKalb
059   Franklin
071   Jackson
077   Lauderdale
079   Lawrence
083   Limestone
089   Madison
095   Marshall
103   Morgan

02   Alaska

01   Alaska

013   Aleutians East Borough
016   Aleutians West Census Area
020   Anchorage Borough
050   Bethel Census Area
060   Bristol Bay Borough
070   Dillingham Census Area
090   Fairbanks North Star Borough
100   Haines Borough
110   Juneau Borough
122   Kenai Peninsula Borough
130   Ketchikan Gateway Borough
150   Kodiak Island Borough
164   Lake and Peninsula Borough
170   Matanuska-Susitna Borough
180   Nome Census Area
185   North Slope Borough
188   Northwest Arctic Borough
201   Prince of Wales-Outer Ketchikan
        Census Area
220   Sitka Borough
231   Skagway-Yakutat-Angoon
        Census Area
240   Southeast Fairbanks Census Area
261   Valdez-Cordova Census Area
270   Wade Hampton Census Area
280   Wrangell-Petersburg Census Area
290   Yukon-Koyukuk Census Area

04   Arizona

01   Southern

003   Cochise
009   Graham
011   Greenlee
012   La Paz
013   Maricopa
019   Pima
021   Pinal

85

023	Santa Cruz
027	Yuma

02 Northern

001	Apache
005	Coconino
007	Gila
015	Mohave
017	Navajo
025	Yavapai

05 Arkansas

01 South Delta

001	Arkansas
017	Chicot
041	Desha
069	Jefferson
077	Lee
079	Lincoln
085	Lonoke
095	Monroe
107	Phillips
117	Prairie

02 North Delta

021	Clay
031	Craighead
035	Crittenden
037	Cross
055	Greene
067	Jackson
075	Lawrence
093	Mississippi
111	Poinsett
123	St. Francis
147	Woodruff

03 Southwest

003	Ashley
011	Bradley
013	Calhoun
019	Clark
025	Cleveland
027	Columbia
039	Dallas

043	Drew
053	Grant
057	Hempstead
059	Hot Spring
061	Howard
073	Lafayette
081	Little River
091	Miller
099	Nevada
103	Ouachita
109	Pike
133	Sevier
139	Union

04 Ouachita

051	Garland
083	Logan
097	Montgomery
105	Perry
113	Polk
119	Pulaski
125	Saline
127	Scott
131	Sebastian
149	Yell

05 Ozark

005	Baxter
007	Benton
009	Boone
015	Carroll
023	Cleburne
029	Conway
033	Crawford
045	Faulkner
047	Franklin
049	Fulton
063	Independence
065	Izard
071	Johnson
087	Madison
089	Marion
101	Newton
115	Pope
121	Randolph
129	Searcy

135	Sharp
137	Stone
141	Van Buren
143	Washington
145	White

06 California

01 North Coast

015	Del Norte
023	Humboldt
045	Mendocino
097	Sonoma

02 North Interior

035	Lassen
049	Modoc
089	Shasta
093	Siskiyou
105	Trinity

03 Sacramento

007	Butte
011	Colusa
017	El Dorado
021	Glenn
033	Lake
055	Napa
057	Nevada
061	Placer
063	Plumas
067	Sacramento
091	Sierra
101	Sutter
103	Tehama
113	Yolo
115	Yuba

04 Central Coast

001	Alameda
013	Contra Costa
041	Marin
053	Monterey
069	San Benito
075	San Francisco

079	San Luis Obispo	**02**	**Southern Front Range**	025	Crowley
081	San Mateo	015	Chaffee	031	Denver
083	Santa Barbara	023	Costilla	061	Kiowa
085	Santa Clara	027	Custer	063	Kit Carson
087	Santa Cruz	043	Fremont	073	Lincoln
095	Solano	055	Huerfano	075	Logan
111	Ventura	071	Las Animas	087	Morgan
		101	Pueblo	089	Otero
				095	Phillips
05	**San Joaquin**			099	Prowers
003	Alpine	**03**	**West Central**	115	Sedgwick
005	Amador	003	Alamosa	121	Washington
009	Calaveras	021	Conejos	123	Weld
019	Fresno	037	Eagle	125	Yuma
029	Kern	049	Grand		
031	Kings	051	Gunnison		
039	Madera	053	Hinsdale		
043	Mariposa	057	Jackson	**09**	**Connecticut**
047	Merced	079	Mineral	**01**	**State**
051	Mono	097	Pitkin	001	Fairfield
077	San Joaquin	105	Rio Grande	003	Hartford
099	Stanislaus	107	Routt	005	Litchfield
107	Tulare	109	Saguache	007	Middlesex
109	Tuolumne	111	San Juan	009	New Haven
		117	Summit	011	New London
				013	Tolland
06	**Southern**			015	Windham
025	Imperial	**04**	**Western**		
027	Inyo	007	Archuleta		
037	Los Angeles	029	Delta		
059	Orange	033	Dolores	**10**	**Delaware**
065	Riverside	045	Garfield	**01**	**State**
071	San Bernardino	067	La Plata	001	Kent
073	San Diego	077	Mesa	003	New Castle
		081	Moffat	005	Sussex
		083	Montezuma		
08	**Colorado**	085	Montrose		
01	**Northern Front Range**	091	Ouray	**11**	**District of Columbia**
013	Boulder	103	Rio Blanco		
019	Clear Creek	113	San Miguel		
035	Douglas			**12**	**Florida**
039	Elbert	**05**	**Eastern**	**01**	**Northeastern**
041	El Paso	001	Adams	001	Alachua
047	Gilpin	005	Arapahoe	003	Baker
059	Jefferson	009	Baca	007	Bradford
065	Lake	011	Bent	019	Clay
069	Larimer	017	Cheyenne	023	Columbia
093	Park				
119	Teller				

029 Dixie
031 Duval
035 Flagler
041 Gilchrist
047 Hamilton
067 Lafayette
075 Levy
079 Madison
083 Marion
089 Nassau
107 Putnam
109 St. Johns
121 Suwannee
123 Taylor
125 Union
127 Volusia

02   Northwestern
005 Bay
013 Calhoun
033 Escambia
037 Franklin
039 Gadsden
045 Gulf
059 Holmes
063 Jackson
065 Jefferson
073 Leon
077 Liberty
091 Okaloosa
113 Santa Rosa
129 Wakulla
131 Walton
133 Washington

03   Central
009 Brevard
017 Citrus
027 DeSoto
049 Hardee
053 Hernando
055 Highlands
057 Hillsborough
061 Indian River

069 Lake
081 Manatee
093 Okeechobee
095 Orange
097 Osceola
101 Pasco
103 Pinellas
105 Polk
111 St. Lucie
115 Sarasota
117 Seminole
119 Sumter

04   Southern
011 Broward
015 Charlotte
021 Collier
025 Dade
043 Glades
051 Hendry
071 Lee
085 Martin
087 Monroe
099 Palm Beach

13   Georgia
01   Southeastern
001 Appling
003 Atkinson
005 Bacon
025 Brantley
029 Bryan
031 Bulloch
039 Camden
043 Candler
049 Charlton
051 Chatham
065 Clinch
069 Coffee
091 Dodge
101 Echols
103 Effingham
107 Emanuel

109 Evans
127 Glynn
161 Jeff Davis
165 Jenkins
167 Johnson
175 Laurens
179 Liberty
183 Long
191 McIntosh
209 Montgomery
229 Pierce
251 Screven
267 Tattnall
271 Telfair
279 Toombs
283 Treutlen
299 Ware
305 Wayne
309 Wheeler

02   Southwestern
007 Baker
017 Ben Hill
019 Berrien
027 Brooks
071 Colquitt
075 Cook
081 Crisp
087 Decatur
093 Dooly
099 Early
131 Grady
155 Irwin
173 Lanier
185 Lowndes
201 Miller
205 Mitchell
253 Seminole
275 Thomas
277 Tift
287 Turner
315 Wilcox
321 Worth

03   Central

009   Baldwin
021   Bibb
023   Bleckley
033   Burke
035   Butts
037   Calhoun
053   Chattahoochee
061   Clay
073   Columbia
079   Crawford
095   Dougherty
125   Glascock
133   Greene
141   Hancock
145   Harris
153   Houston
159   Jasper
163   Jefferson
169   Jones
171   Lamar
177   Lee
181   Lincoln
189   McDuffie
193   Macon
197   Marion
207   Monroe
211   Morgan
215   Muscogee
225   Peach
231   Pike
235   Pulaski
237   Putnam
239   Quitman
243   Randolph
245   Richmond
249   Schley
259   Stewart
261   Sumter
263   Talbot
265   Taliaferro
269   Taylor
273   Terrell
289   Twiggs
293   Upson

301   Warren
303   Washington
307   Webster
317   Wilkes
319   Wilkinson

04   North Central

011   Banks
013   Barrow
045   Carroll
059   Clarke
063   Clayton
067   Cobb
077   Coweta
089   DeKalb
097   Douglas
105   Elbert
113   Fayette
117   Forsyth
119   Franklin
121   Fulton
135   Gwinnett
139   Hall
143   Haralson
147   Hart
149   Heard
151   Henry
157   Jackson
195   Madison
199   Meriwether
217   Newton
219   Oconee
221   Oglethorpe
223   Paulding
233   Polk
247   Rockdale
255   Spalding
285   Troup
297   Walton

05   Northern

015   Bartow
047   Catoosa
055   Chattooga
057   Cherokee

083   Dade
085   Dawson
111   Fannin
115   Floyd
123   Gilmer
129   Gordon
137   Habersham
187   Lumpkin
213   Murray
227   Pickens
241   Rabun
257   Stephens
281   Towns
291   Union
295   Walker
311   White
313   Whitfield

15   Hawaii

01   State

001   Hawaii
003   Honolulu
005   Kalawao
007   Kauai
009   Maui

16   Idaho

01   Northern

009   Benewah
017   Bonner
021   Boundary
035   Clearwater
049   Idaho
055   Kootenai
057   Latah
061   Lewis
069   Nez Perce
079   Shoshone

02   Southeastern

001   Ada
003   Adams
015   Boise

89

027 Canyon
039 Elmore
045 Gem
073 Owyhee
075 Payette
085 Valley
087 Washington

03   Southwestern
005 Bannock
007 Bear Lake
011 Bingham
013 Blaine
019 Bonneville
023 Butte
025 Camas
029 Caribou
031 Cassia
033 Clark
037 Custer
041 Franklin
043 Fremont
047 Gooding
051 Jefferson
053 Jerome
059 Lemhi
063 Lincoln
065 Madison
067 Minidoka
071 Oneida
077 Power
081 Teton
083 Twin Falls

17   Illinois

01   Southern
003 Alexander
055 Franklin
059 Gallatin
065 Hamilton
069 Hardin
077 Jackson
087 Johnson
127 Massac

145 Perry
151 Pope
153 Pulaski
157 Randolph
165 Saline
181 Union
193 White
199 Williamson

02   Claypan
005 Bond
013 Calhoun
023 Clark
025 Clay
027 Clinton
033 Crawford
035 Cumberland
047 Edwards
049 Effingham
051 Fayette
061 Greene
079 Jasper
081 Jefferson
083 Jersey
101 Lawrence
117 Macoupin
119 Madison
121 Marion
133 Monroe
135 Montgomery
159 Richland
163 St. Clair
173 Shelby
185 Wabash
189 Washington
191 Wayne

03   Prairie
001 Adams
007 Boone
009 Brown
011 Bureau
015 Carroll
017 Cass
019 Champaign
021 Christian

029 Coles
031 Cook
037 DeKalb
039 De Witt
041 Douglas
043 DuPage
045 Edgar
053 Ford
057 Fulton
063 Grundy
067 Hancock
071 Henderson
073 Henry
075 Iroquois
085 Jo Daviess
089 Kane
091 Kankakee
093 Kendall
095 Knox
097 Lake
099 La Salle
103 Lee
105 Livingston
107 Logan
109 McDonough
111 McHenry
113 McLean
115 Macon
123 Marshall
125 Mason
129 Menard
131 Mercer
137 Morgan
139 Moultrie
141 Ogle
143 Peoria
147 Piatt
149 Pike
155 Putnam
161 Rock Island
167 Sangamon
169 Schuyler
171 Scott
175 Stark
177 Stephenson

179 Tazewell
183 Vermilion
187 Warren
195 Whiteside
197 Will
201 Winnebago
203 Woodford

18   Indiana

01   Lower Wabash
021 Clay
027 Daviess
051 Gibson
055 Greene
083 Knox
101 Martin
121 Parke
125 Pike
129 Posey
133 Putnam
153 Sullivan
163 Vanderburgh
165 Vermillion
167 Vigo

02   Knobs
013 Brown
019 Clark
025 Crawford
037 Dubois
043 Floyd
061 Harrison
071 Jackson
093 Lawrence
105 Monroe
109 Morgan
117 Orange
119 Owen
123 Perry
143 Scott
147 Spencer
173 Warrick
175 Washington

03   Upland Flats
029 Dearborn
041 Fayette
047 Franklin
077 Jefferson
079 Jennings
115 Ohio
137 Ripley
155 Switzerland
161 Union

04   Northern
001 Adams
003 Allen
005 Bartholomew
007 Benton
009 Blackford
011 Boone
015 Carroll
017 Cass
023 Clinton
031 Decatur
033 De Kalb
035 Delaware
039 Elkhart
045 Fountain
049 Fulton
053 Grant
057 Hamilton
059 Hancock
063 Hendricks
065 Henry
067 Howard
069 Huntington
073 Jasper
075 Jay
081 Johnson
085 Kosciusko
087 Lagrange
089 Lake
091 La Porte
095 Madison
097 Marion
099 Marshall
103 Miami
107 Montgomery

111 Newton
113 Noble
127 Porter
131 Pulaski
135 Randolph
139 Rush
141 St. Joseph
145 Shelby
149 Starke
151 Steuben
157 Tippecanoe
159 Tipton
169 Wabash
171 Warren
177 Wayne
179 Wells
181 White
183 Whitley

19   Iowa

01   Northeastern
005 Allamakee
011 Benton
013 Black Hawk
017 Bremer
019 Buchanan
023 Butler
031 Cedar
037 Chickasaw
043 Clayton
045 Clinton
055 Delaware
061 Dubuque
065 Fayette
067 Floyd
075 Grundy
089 Howard
097 Jackson
103 Johnson
105 Jones
113 Linn
131 Mitchell
163 Scott
171 Tama
191 Winneshiek

02 Southeastern

007 Appanoose
015 Boone
039 Clarke
049 Dallas
051 Davis
053 Decatur
057 Des Moines
077 Guthrie
079 Hamilton
083 Hardin
087 Henry
095 Iowa
099 Jasper
101 Jefferson
107 Keokuk
111 Lee
115 Louisa
117 Lucas
121 Madison
123 Mahaska
125 Marion
127 Marshall
135 Monroe
139 Muscatine
153 Polk
157 Poweshiek
169 Story
177 Van Buren
179 Wapello
181 Warren
183 Washington
185 Wayne
187 Webster

03 Southwestern

001 Adair
003 Adams
009 Audubon
027 Carroll
029 Cass
047 Crawford
071 Fremont
073 Greene
085 Harrison

129 Mills
133 Monona
137 Montgomery
145 Page
155 Pottawattamie
159 Ringgold
165 Shelby
173 Taylor
175 Union
193 Woodbury

04 Northwestern

021 Buena Vista
025 Calhoun
033 Cerro Gordo
035 Cherokee
041 Clay
059 Dickinson
063 Emmet
069 Franklin
081 Hancock
091 Humboldt
093 Ida
109 Kossuth
119 Lyon
141 O'Brien
143 Osceola
147 Palo Alto
149 Plymouth
151 Pocahontas
161 Sac
167 Sioux
189 Winnebago
195 Worth
197 Wright

20 Kansas

01 Northeastern

005 Atchison
013 Brown
027 Clay
041 Dickinson
043 Doniphan
045 Douglas
059 Franklin

061 Geary
085 Jackson
087 Jefferson
091 Johnson
103 Leavenworth
117 Marshall
121 Miami
131 Nemaha
139 Osage
149 Pottawatomie
161 Riley
177 Shawnee
197 Wabaunsee
201 Washington
209 Wyandotte

02 Southeastern

001 Allen
003 Anderson
011 Bourbon
015 Butler
017 Chase
019 Chautauqua
021 Cherokee
031 Coffey
035 Cowley
037 Crawford
049 Elk
073 Greenwood
099 Labette
107 Linn
111 Lyon
115 Marion
125 Montgomery
127 Morris
133 Neosho
205 Wilson
207 Woodson

03 Western

007 Barber
009 Barton
023 Cheyenne
025 Clark
029 Cloud
033 Comanche

039	Decatur	179	Sheridan	121	Knox
047	Edwards	181	Sherman	125	Laurel
051	Ellis	183	Smith	129	Lee
053	Ellsworth	185	Stafford	147	McCreary
055	Finney	187	Stanton	189	Owsley
057	Ford	189	Stevens	203	Rockcastle
063	Gove	191	Sumner	235	Whitley
065	Graham	193	Thomas		
067	Grant	195	Trego	**04**	**Bluegrass**
069	Gray	199	Wallace	005	Anderson
071	Greeley	203	Wichita	011	Bath
075	Hamilton			015	Boone
077	Harper			017	Bourbon
079	Harvey	**21**	**Kentucky**	021	Boyle
081	Haskell	**01**	**Eastern**	023	Bracken
083	Hodgeman	071	Floyd	037	Campbell
089	Jewell	095	Harlan	041	Carroll
093	Kearny	119	Knott	049	Clark
095	Kingman	131	Leslie	067	Fayette
097	Kiowa	133	Letcher	069	Fleming
101	Lane	159	Martin	073	Franklin
105	Lincoln	193	Perry	077	Gallatin
109	Logan	195	Pike	079	Garrard
113	McPherson			081	Grant
119	Meade	**02**	**Northern Cumberland**	097	Harrison
123	Mitchell	019	Boyd	103	Henry
129	Morton	043	Carter	111	Jefferson
135	Ness	063	Elliott	113	Jessamine
137	Norton	089	Greenup	117	Kenton
141	Osborne	115	Johnson	137	Lincoln
143	Ottawa	127	Lawrence	151	Madison
145	Pawnee	135	Lewis	161	Mason
147	Phillips	153	Magoffin	167	Mercer
151	Pratt	165	Menifee	173	Montgomery
153	Rawlins	175	Morgan	181	Nicholas
155	Reno	197	Powell	185	Oldham
157	Republic	205	Rowan	187	Owen
159	Rice	237	Wolfe	191	Pendleton
163	Rooks			201	Robertson
165	Rush	**03**	**Southern Cumberland**	209	Scott
167	Russell	013	Bell	211	Shelby
169	Saline	025	Breathitt	215	Spencer
171	Scott	051	Clay	223	Trimble
173	Sedgwick	065	Estill	229	Washington
175	Seward	109	Jackson	239	Woodford

05 Pennyroyal

001	Adair
027	Breckinridge
029	Bullitt
045	Casey
053	Clinton
057	Cumberland
085	Grayson
087	Green
091	Hancock
093	Hardin
099	Hart
123	Larue
155	Marion
163	Meade
169	Metcalfe
179	Nelson
199	Pulaski
207	Russell
217	Taylor
231	Wayne

06 Western Coalfield

003	Allen
009	Barren
031	Butler
033	Caldwell
047	Christian
055	Crittenden
059	Daviess
061	Edmonson
101	Henderson
107	Hopkins
141	Logan
149	McLean
171	Monroe
177	Muhlenberg
183	Ohio
213	Simpson
219	Todd
225	Union
227	Warren
233	Webster

07 Western

007	Ballard
035	Calloway
039	Carlisle
075	Fulton
083	Graves
105	Hickman
139	Livingston
143	Lyon
145	McCracken
157	Marshall
221	Trigg

22 Louisiana

01 North Delta

025	Catahoula
029	Concordia
035	East Carroll
041	Franklin
065	Madison
067	Morehouse
083	Richland
107	Tensas
123	West Carroll

02 South Delta

001	Acadia
005	Ascension
007	Assumption
009	Avoyelles
045	Iberia
047	Iberville
055	Lafayette
057	Lafourche
077	Pointe Coupee
089	St. Charles
093	St. James
095	St. John the Baptist
097	St. Landry
099	St. Martin
101	St. Mary
109	Terrebonne
113	Vermilion
121	West Baton Rouge
125	West Feliciana

03 Southwest

003	Allen
011	Beauregard
019	Calcasieu
039	Evangeline
043	Grant
053	Jefferson Davis
059	La Salle
069	Natchitoches
079	Rapides
085	Sabine
115	Vernon

04 Southeast

033	East Baton Rouge
037	East Feliciana
063	Livingston
091	St. Helena
103	St. Tammany
105	Tangipahoa
117	Washington

05 Northwest

013	Bienville
015	Bossier
017	Caddo
021	Caldwell
027	Claiborne
031	De Soto
049	Jackson
061	Lincoln
073	Ouachita
081	Red River
111	Union
119	Webster
127	Winn

Unsampled parishes

023	Cameron
051	Jefferson
071	Orleans
075	Plaquemines
087	St. Bernard

23 Maine

01 Washington
029 Washington

02 Aroostook
003 Aroostook

03 Penobscot
019 Penobscot

04 Hancock
009 Hancock

05 Piscataquis
021 Piscataquis

06 Capitol Region
011 Kennebec
013 Knox
015 Lincoln
027 Waldo

07 Somerset
025 Somerset

08 Casco Bay
001 Androscoggin
005 Cumberland
023 Sagadahoc
031 York

09 Western Maine
007 Franklin
017 Oxford

24 Maryland

02 North Central
003 Anne Arundel
005 Baltimore
011 Caroline
013 Carroll
015 Cecil
021 Frederick
025 Harford
027 Howard

029 Kent
031 Montgomery
033 Prince George's
035 Queen Anne's
041 Talbot
043 Washington
510 Baltimore city

03 Southern
009 Calvert
017 Charles
037 St. Mary's

04 Lower Eastern Shore
019 Dorchester
039 Somerset
045 Wicomico
047 Worcester

05 Western
001 Allegany
023 Garrett

25 Massachusetts

01 State
001 Barnstable
003 Berkshire
005 Bristol
007 Dukes
009 Essex
011 Franklin
013 Hampden
015 Hampshire
017 Middlesex
019 Nantucket
021 Norfolk
023 Plymouth
025 Suffolk
027 Worcester

26 Michigan

01 Eastern Upper Peninsula
003 Alger
033 Chippewa

041 Delta
095 Luce
097 Mackinac
109 Menominee
153 Schoolcraft

02 Western Upper Peninsula
013 Baraga
043 Dickinson
053 Gogebic
061 Houghton
071 Iron
083 Keweenaw
103 Marquette
131 Ontonagon

03 Northern Lower Peninsula
001 Alcona
007 Alpena
009 Antrim
011 Arenac
017 Bay
019 Benzie
029 Charlevoix
031 Cheboygan
035 Clare
039 Crawford
047 Emmet
051 Gladwin
055 Grand Traverse
069 Iosco
073 Isabella
079 Kalkaska
085 Lake
089 Leelanau
101 Manistee
105 Mason
107 Mecosta
111 Midland
113 Missaukee
119 Montmorency
123 Newaygo
127 Oceana
129 Ogemaw
133 Osceola
135 Oscoda

95

137	Otsego
141	Presque Isle
143	Roscommon
165	Wexford

04 Southern Lower Peninsula

005	Allegan
015	Barry
021	Berrien
023	Branch
025	Calhoun
027	Cass
037	Clinton
045	Eaton
049	Genesee
057	Gratiot
059	Hillsdale
063	Huron
065	Ingham
067	Ionia
075	Jackson
077	Kalamazoo
081	Kent
087	Lapeer
091	Lenawee
093	Livingston
099	Macomb
115	Monroe
117	Montcalm
121	Muskegon
125	Oakland
139	Ottawa
145	Saginaw
147	St. Clair
149	St. Joseph
151	Sanilac
155	Shiawassee
157	Tuscola
159	Van Buren
161	Washtenaw
163	Wayne

27 Minnesota

01 Aspen-Birch

017	Carlton
031	Cook
071	Koochiching
075	Lake
137	St. Louis

02 Northern Pine

001	Aitkin
005	Becker
007	Beltrami
021	Cass
029	Clearwater
035	Crow Wing
057	Hubbard
061	Itasca
077	Lake of the Woods
087	Mahnomen
135	Roseau
159	Wadena

03 Central Hardwood

003	Anoka
009	Benton
019	Carver
025	Chisago
037	Dakota
041	Douglas
045	Fillmore
049	Goodhue
053	Hennepin
055	Houston
059	Isanti
065	Kanabec
079	Le Sueur
095	Mille Lacs
097	Morrison
109	Olmsted
111	Otter Tail
115	Pine
123	Ramsey
131	Rice
139	Scott

141	Sherburne
145	Stearns
153	Todd
157	Wabasha
163	Washington
169	Winona
171	Wright

04 Prairie

011	Big Stone
013	Blue Earth
015	Brown
023	Chippewa
027	Clay
033	Cottonwood
039	Dodge
043	Faribault
047	Freeborn
051	Grant
063	Jackson
067	Kandiyohi
069	Kittson
073	Lac qui Parle
081	Lincoln
083	Lyon
085	McLeod
089	Marshall
091	Martin
093	Meeker
099	Mower
101	Murray
103	Nicollet
105	Nobles
107	Norman
113	Pennington
117	Pipestone
119	Polk
121	Pope
125	Red Lake
127	Redwood
129	Renville
133	Rock
143	Sibley
147	Steele
149	Stevens

151 Swift
155 Traverse
161 Waseca
165 Watonwan
167 Wilkin
173 Yellow Medicine

28 Mississippi

01 Delta
011 Bolivar
027 Coahoma
051 Holmes
053 Humphreys
055 Issaquena
083 Leflore
119 Quitman
125 Sharkey
133 Sunflower
135 Tallahatchie
143 Tunica
149 Warren
151 Washington
163 Yazoo

02 North
003 Alcorn
009 Benton
013 Calhoun
015 Carroll
017 Chickasaw
019 Choctaw
025 Clay
033 DeSoto
043 Grenada
057 Itawamba
071 Lafayette
081 Lee
087 Lowndes
093 Marshall
095 Monroe
097 Montgomery
105 Oktibbeha
107 Panola
115 Pontotoc

117 Prentiss
137 Tate
139 Tippah
141 Tishomingo
145 Union
155 Webster
161 Yalobusha

03 Central
007 Attala
023 Clarke
061 Jasper
069 Kemper
075 Lauderdale
079 Leake
099 Neshoba
101 Newton
103 Noxubee
121 Rankin
123 Scott
127 Simpson
129 Smith
159 Winston

04 South
031 Covington
035 Forrest
039 George
041 Greene
045 Hancock
047 Harrison
059 Jackson
065 Jefferson Davis
067 Jones
073 Lamar
077 Lawrence
091 Marion
109 Pearl River
111 Perry
131 Stone
147 Walthall
153 Wayne

05 Southwest
001 Adams
005 Amite

021 Claiborne
029 Copiah
037 Franklin
049 Hinds
063 Jefferson
085 Lincoln
089 Madison
113 Pike
157 Wilkinson

29 Missouri

01 Eastern Ozarks
017 Bollinger
023 Butler
035 Carter
055 Crawford
065 Dent
093 Iron
123 Madison
149 Oregon
179 Reynolds
181 Ripley
187 St. Francois
203 Shannon
221 Washington
223 Wayne

02 Southwestern Ozarks
009 Barry
043 Christian
067 Douglas
091 Howell
119 McDonald
145 Newton
153 Ozark
209 Stone
213 Taney
215 Texas
225 Webster
229 Wright

03 Northwestern Ozarks
015 Benton
029 Camden

039	Cedar		115	Linn		219	Warren
059	Dallas		117	Livingston		510	St. Louis city
085	Hickory		121	Macon			
105	Laclede		127	Marion			
125	Maries		129	Mercer		**30**	**Montana**
131	Miller		137	Monroe		**01**	**Northwestern**
141	Morgan		147	Nodaway		029	Flathead
161	Phelps		159	Pettis		047	Lake
167	Polk		163	Pike		053	Lincoln
169	Pulaski		165	Platte		089	Sanders
185	St. Clair		171	Putnam			
			173	Ralls		**02**	**Eastern**
04	**Prairie**		175	Randolph		003	Big Horn
001	Adair		177	Ray		005	Blaine
003	Andrew		195	Saline		009	Carbon
005	Atchison		197	Schuyler		011	Carter
007	Audrain		199	Scotland		015	Chouteau
011	Barton		205	Shelby		017	Custer
013	Bates		211	Sullivan		019	Daniels
021	Buchanan		217	Vernon		021	Dawson
025	Caldwell		227	Worth		025	Fallon
033	Carroll					027	Fergus
037	Cass					033	Garfield
041	Chariton		**05**	**Riverborder**		035	Glacier
045	Clark		019	Boone		037	Golden Valley
047	Clay		027	Callaway		041	Hill
049	Clinton		031	Cape Girardeau		051	Liberty
053	Cooper		051	Cole		055	McCone
057	Dade		069	Dunklin		065	Musselshell
061	Daviess		071	Franklin		069	Petroleum
063	DeKalb		073	Gasconade		071	Phillips
075	Gentry		089	Howard		073	Pondera
077	Greene		099	Jefferson		075	Powder River
079	Grundy		133	Mississippi		079	Prairie
081	Harrison		135	Moniteau		083	Richland
083	Henry		139	Montgomery		085	Roosevelt
087	Holt		143	New Madrid		087	Rosebud
095	Jackson		151	Osage		091	Sheridan
097	Jasper		155	Pemiscot		095	Stillwater
101	Johnson		157	Perry		097	Sweet Grass
103	Knox		183	St. Charles		099	Teton
107	Lafayette		186	Ste. Genevieve		101	Toole
109	Lawrence		189	St. Louis		103	Treasure
111	Lewis		201	Scott		105	Valley
113	Lincoln		207	Stoddard		109	Wibaux

111	Yellowstone	055	Douglas	**02**	**Western**
113	Yellowstone National Park	059	Fillmore	003	Antelope
		061	Franklin	005	Arthur
03	**Western**	063	Frontier	007	Banner
039	Granite	065	Furnas	009	Blaine
061	Mineral	067	Gage	013	Box Butte
063	Missoula	073	Gosper	015	Boyd
081	Ravalli	077	Greeley	017	Brown
		079	Hall	029	Chase
04	**West Central**	081	Hamilton	031	Cherry
007	Broadwater	083	Harlan	033	Cheyenne
013	Cascade	087	Hitchcock	045	Dawes
043	Jefferson	093	Howard	049	Deuel
045	Judith Basin	095	Jefferson	057	Dundy
049	Lewis and Clark	097	Johnson	069	Garden
059	Meagher	099	Kearney	071	Garfield
077	Powell	109	Lancaster	075	Grant
107	Wheatland	119	Madison	085	Hayes
		121	Merrick	089	Holt
05	**Southwestern**	125	Nance	091	Hooker
001	Beaverhead	127	Nemaha	101	Keith
023	Deer Lodge	129	Nuckolls	103	Keya Paha
031	Gallatin	131	Otoe	105	Kimball
057	Madison	133	Pawnee	107	Knox
067	Park	137	Phelps	111	Lincoln
093	Silver Bow	139	Pierce	113	Logan
		141	Platte	115	Loup
		143	Polk	117	McPherson
31	**Nebraska**	145	Red Willow	123	Morrill
01	**Eastern**	147	Richardson	135	Perkins
001	Adams	151	Saline	149	Rock
011	Boone	153	Sarpy	157	Scotts Bluff
019	Buffalo	155	Saunders	161	Sheridan
021	Burt	159	Seward	165	Sioux
023	Butler	163	Sherman	171	Thomas
025	Cass	167	Stanton	183	Wheeler
027	Cedar	169	Thayer		
035	Clay	173	Thurston		
037	Colfax	175	Valley	**32**	**Nevada**
039	Cuming	177	Washington	**01**	**Nevada**
041	Custer	179	Wayne	001	Churchill
043	Dakota	181	Webster	003	Clark
047	Dawson	185	York	005	Douglas
051	Dixon			007	Elko
053	Dodge			009	Esmeralda

011 Eureka
013 Humboldt
015 Lander
017 Lincoln
019 Lyon
021 Mineral
023 Nye
027 Pershing
029 Storey
031 Washoe
033 White Pine
510 Carson City

33   New Hampshire

02   Northern
003 Carroll
007 Coos
009 Grafton

03   Southern
001 Belknap
005 Cheshire
011 Hillsborough
013 Merrimack
015 Rockingham
017 Strafford
019 Sullivan

34   New Jersey

01   State
001 Atlantic
003 Bergen
005 Burlington
007 Camden
009 Cape May
011 Cumberland
013 Essex
015 Gloucester
017 Hudson
019 Hunterdon
021 Mercer
023 Middlesex
025 Monmouth

027 Morris
029 Ocean
031 Passaic
033 Salem
035 Somerset
037 Sussex
039 Union
041 Warren

35   New Mexico

01   Northwestern
001 Bernalillo
006 Cibola
028 Los Alamos
031 McKinley
039 Rio Arriba
043 Sandoval
045 San Juan
049 Santa Fe
055 Taos
061 Valencia

02   Northeastern
007 Colfax
019 Guadalupe
021 Harding
033 Mora
037 Quay
047 San Miguel
057 Torrance
059 Union

03   Southwestern
003 Catron
013 Dona Ana
017 Grant
023 Hidalgo
029 Luna
051 Sierra
053 Socorro

04   Southeastern
005 Chaves
009 Curry

011 DeBaca
015 Eddy
025 Lea
027 Lincoln
035 Otero
041 Roosevelt

36   New York

01   Adirondack
019 Clinton
033 Franklin
045 Jefferson
087 Rockland
089 St. Lawrence

02   Lake Plain
011 Cayuga
029 Erie
037 Genesee
051 Livingston
053 Madison
055 Monroe
063 Niagara
067 Onondaga
069 Ontario
073 Orleans
075 Oswego
099 Seneca
117 Wayne
121 Wyoming
123 Yates

03   Western Adirondack
035 Fulton
043 Herkimer
049 Lewis
065 Oneida

04   Eastern Adirondack
031 Essex
041 Hamilton
113 Warren

05	**Southwest Highlands**	**37**	**North Carolina**	177	Tyrrell
003	Allegany	**01**	**Southern Coastal Plain**	187	Washington
009	Cattaraugus	017	Bladen	195	Wilson
013	Chautauqua	019	Brunswick		
101	Steuben	047	Columbus	**03**	**Piedmont**
		051	Cumberland	001	Alamance
06	**South-Central Highlands**	061	Duplin	003	Alexander
007	Broome	079	Greene	007	Anson
015	Chemung	085	Harnett	025	Cabarrus
017	Chenango	093	Hoke	033	Caswell
023	Cortland	101	Johnston	035	Catawba
025	Delaware	103	Jones	037	Chatham
077	Otsego	105	Lee	045	Cleveland
097	Schuyler	107	Lenoir	057	Davidson
107	Tioga	125	Moore	059	Davie
109	Tompkins	129	New Hanover	063	Durham
		133	Onslow	067	Forsyth
07	**Capitol District**	141	Pender	069	Franklin
001	Albany	153	Richmond	071	Gaston
021	Columbia	155	Robeson	077	Granville
057	Montgomery	163	Sampson	081	Guilford
083	Rensselaer	165	Scotland	097	Iredell
091	Saratoga	191	Wayne	109	Lincoln
093	Schenectady			119	Mecklenburg
115	Washington	**02**	**Northern Coastal Plain**	123	Montgomery
		013	Beaufort	135	Orange
08	**Catskill-Lower Hudson**	015	Bertie	145	Person
005	Bronx	029	Camden	149	Polk
027	Dutchess	031	Carteret	151	Randolph
039	Greene	041	Chowan	157	Rockingham
047	Kings	049	Craven	159	Rowan
059	Nassau	053	Currituck	161	Rutherford
061	New York	055	Dare	167	Stanly
071	Orange	065	Edgecombe	169	Stokes
079	Putnam	073	Gates	171	Surry
081	Queens	083	Halifax	179	Union
085	Richmond	091	Hertford	181	Vance
095	Schoharie	095	Hyde	183	Wake
103	Suffolk	117	Martin	185	Warren
105	Sullivan	127	Nash	197	Yadkin
111	Ulster	131	Northampton		
119	Westchester	137	Pamlico	**04**	**Mountains**
		139	Pasquotank	005	Alleghany
		143	Perquimans	009	Ashe
		147	Pitt	011	Avery

021	Buncombe	047	Logan	**02**	**Southeastern**		
023	Burke	049	McHenry	009	Athens		
027	Caldwell	051	McIntosh	073	Hocking		
039	Cherokee	053	McKenzie	105	Meigs		
043	Clay	055	McLean	115	Morgan		
075	Graham	057	Mercer	127	Perry		
087	Haywood	059	Morton	163	Vinton		
089	Henderson	061	Mountrail	167	Washington		
099	Jackson	063	Nelson				

Column 1:

021 Buncombe
023 Burke
027 Caldwell
039 Cherokee
043 Clay
075 Graham
087 Haywood
089 Henderson
099 Jackson
111 McDowell
113 Macon
115 Madison
121 Mitchell
173 Swain
175 Transylvania
189 Watauga
193 Wilkes
199 Yancey

38 North Dakota

01 Eastern
001 Adams
003 Barnes
005 Benson
007 Billings
009 Bottineau
011 Bowman
013 Burke
015 Burleigh
017 Cass
019 Cavalier
021 Dickey
023 Divide
025 Dunn
027 Eddy
029 Emmons
031 Foster
033 Golden Valley
035 Grand Forks
037 Grant
039 Griggs
041 Hettinger
043 Kidder
045 LaMoure

Column 2:

047 Logan
049 McHenry
051 McIntosh
053 McKenzie
055 McLean
057 Mercer
059 Morton
061 Mountrail
063 Nelson
065 Oliver
067 Pembina
069 Pierce
071 Ramsey
073 Ransom
075 Renville
077 Richland
079 Rolette
081 Sargent
083 Sheridan
085 Sioux
087 Slope
089 Stark
091 Steele
093 Stutsman
095 Towner
097 Traill
099 Walsh
101 Ward
103 Wells
105 Williams

39 Ohio

01 South-Central
001 Adams
015 Brown
025 Clermont
053 Gallia
071 Highland
079 Jackson
087 Lawrence
131 Pike
141 Ross
145 Scioto

Column 3:

02 Southeastern
009 Athens
073 Hocking
105 Meigs
115 Morgan
127 Perry
163 Vinton
167 Washington

03 East-Central
013 Belmont
019 Carroll
031 Coshocton
059 Guernsey
067 Harrison
075 Holmes
081 Jefferson
111 Monroe
119 Muskingum
121 Noble
157 Tuscarawas

04 Northeastern
005 Ashland
007 Ashtabula
029 Columbiana
035 Cuyahoga
043 Erie
055 Geauga
077 Huron
085 Lake
093 Lorain
099 Mahoning
103 Medina
133 Portage
139 Richland
151 Stark
153 Summit
155 Trumbull
169 Wayne

05 Southwestern
017 Butler
023 Clark
027 Clinton

037	Darke
045	Fairfield
047	Fayette
049	Franklin
057	Greene
061	Hamilton
089	Licking
097	Madison
109	Miami
113	Montgomery
129	Pickaway
135	Preble
165	Warren

06 Northwestern

003	Allen
011	Auglaize
021	Champaign
033	Crawford
039	Defiance
041	Delaware
051	Fulton
063	Hancock
065	Hardin
069	Henry
083	Knox
091	Logan
095	Lucas
101	Marion
107	Mercer
117	Morrow
123	Ottawa
125	Paulding
137	Putnam
143	Sandusky
147	Seneca
149	Shelby
159	Union
161	Van Wert
171	Williams
173	Wood
175	Wyandot

40 Oklahoma

01 Southeast

005	Atoka
013	Bryan
023	Choctaw
029	Coal
061	Haskell
077	Latimer
079	Le Flore
089	McCurtain
121	Pittsburg
127	Pushmataha

02 Northeast

001	Adair
021	Cherokee
041	Delaware
091	McIntosh
097	Mayes
101	Muskogee
115	Ottawa
135	Sequoyah

Unsampled counties

003	Alfalfa
007	Beaver
009	Beckham
011	Blaine
015	Caddo
017	Canadian
019	Carter
025	Cimarron
027	Cleveland
031	Comanche
033	Cotton
035	Craig
037	Creek
039	Custer
043	Dewey
045	Ellis
047	Garfield
049	Garvin
051	Grady
053	Grant
055	Greer
057	Harmon

059	Harper
063	Hughes
065	Jackson
067	Jefferson
069	Johnston
071	Kay
073	Kingfisher
075	Kiowa
081	Lincoln
083	Logan
085	Love
087	McClain
093	Major
095	Marshall
099	Murray
103	Noble
105	Nowata
107	Okfuskee
109	Oklahoma
111	Okmulgee
113	Osage
117	Pawnee
119	Payne
123	Pontotoc
125	Pottawatomie
129	Roger Mills
131	Rogers
133	Seminole
137	Stephens
139	Texas
141	Tillman
143	Tulsa
145	Wagoner
147	Washington
149	Washita
151	Woods
153	Woodward

41 Oregon

00 Northwest

005	Clackamas
007	Clatsop
009	Columbia
027	Hood River
047	Marion

051 Multnomah
053 Polk
057 Tillamook
067 Washington
071 Yamhill

01 West Central
003 Benton
039 Lane
041 Lincoln
043 Linn

02 Southwest
011 Coos
015 Curry
019 Douglas
029 Jackson
033 Josephine

03 Central
013 Crook
017 Deschutes
021 Gilliam
031 Jefferson
035 Klamath
037 Lake
055 Sherman
065 Wasco
069 Wheeler

04 Blue Mountains
001 Baker
023 Grant
025 Harney
045 Malheur
049 Morrow
059 Umatilla
061 Union
063 Wallowa

42 Pennsylvania
00 South Central
043 Dauphin
055 Franklin

057 Fulton
061 Huntingdon
067 Juniata
087 Mifflin
099 Perry
109 Snyder
119 Union

05 Western
003 Allegheny
005 Armstrong
007 Beaver
019 Butler
039 Crawford
049 Erie
059 Greene
063 Indiana
073 Lawrence
085 Mercer
125 Washington
129 Westmoreland

06 North Central/Allegheny
023 Cameron
027 Centre
031 Clarion
033 Clearfield
035 Clinton
047 Elk
053 Forest
065 Jefferson
081 Lycoming
083 Mc Kean
105 Potter
113 Sullivan
117 Tioga
121 Venango
123 Warren

07 Southwestern
009 Bedford
013 Blair
021 Cambria
051 Fayette
111 Somerset

08 Northeastern/Pocono
015 Bradford
025 Carbon
037 Columbia
069 Lackawanna
079 Luzerne
089 Monroe
093 Montour
097 Northumberland
103 Pike
107 Schuylkill
115 Susquehanna
127 Wayne
131 Wyoming

09 Southeastern
001 Adams
011 Berks
017 Bucks
029 Chester
041 Cumberland
045 Delaware
071 Lancaster
075 Lebanon
077 Lehigh
091 Montgomery
095 Northampton
101 Philadelphia
133 York

44 Rhode Island
01 State
001 Bristol
003 Kent
005 Newport
007 Providence
009 Washington

45 South Carolina
01 Southern Coastal Plain
003 Aiken
005 Allendale
009 Bamberg

011	Barnwell	087	Union	091	Marshall
013	Beaufort	091	York	095	Mellette
017	Calhoun			097	Miner
029	Colleton			099	Minnehaha
035	Dorchester	**46**	**South Dakota**	101	Moody
049	Hampton	**01**	**Eastern**	105	Perkins
053	Jasper	003	Aurora	107	Potter
063	Lexington	005	Beadle	109	Roberts
075	Orangeburg	007	Bennett	111	Sanborn
		009	Bon Homme	115	Spink
02	**Northern Coastal Plain**	011	Brookings	117	Stanley
015	Berkeley	013	Brown	119	Sully
019	Charleston	015	Brule	121	Todd
025	Chesterfield	017	Buffalo	123	Tripp
027	Clarendon	021	Campbell	125	Turner
031	Darlington	023	Charles Mix	127	Union
033	Dillon	025	Clark	129	Walworth
041	Florence	027	Clay	135	Yankton
043	Georgetown	029	Codington	137	Ziebach
051	Horry	031	Corson		
055	Kershaw	035	Davison	**02**	**Western**
061	Lee	037	Day	019	Butte
067	Marion	039	Deuel	033	Custer
069	Marlboro	041	Dewey	047	Fall River
079	Richland	043	Douglas	063	Harding
085	Sumter	045	Edmunds	081	Lawrence
089	Williamsburg	049	Faulk	093	Meade
		051	Grant	103	Pennington
03	**Piedmont**	053	Gregory	113	Shannon
001	Abbeville	055	Haakon		
007	Anderson	057	Hamlin		
021	Cherokee	059	Hand	**47**	**Tennessee**
023	Chester	061	Hanson	**01**	**West**
037	Edgefield	065	Hughes	017	Carroll
039	Fairfield	067	Hutchinson	023	Chester
045	Greenville	069	Hyde	033	Crockett
047	Greenwood	071	Jackson	045	Dyer
057	Lancaster	073	Jerauld	047	Fayette
059	Laurens	075	Jones	053	Gibson
065	McCormick	077	Kingsbury	069	Hardeman
071	Newberry	079	Lake	075	Haywood
073	Oconee	083	Lincoln	077	Henderson
077	Pickens	085	Lyman	079	Henry
081	Saluda	087	McCook	095	Lake
083	Spartanburg	089	McPherson		

097	Lauderdale
109	McNairy
113	Madison
131	Obion
157	Shelby
167	Tipton
183	Weakley

02 West Central

005	Benton
039	Decatur
071	Hardin
081	Hickman
083	Houston
085	Humphreys
099	Lawrence
101	Lewis
135	Perry
161	Stewart
181	Wayne

03 Central

003	Bedford
015	Cannon
021	Cheatham
027	Clay
031	Coffee
037	Davidson
041	DeKalb
043	Dickson
055	Giles
087	Jackson
103	Lincoln
111	Macon
117	Marshall
119	Maury
125	Montgomery
127	Moore
147	Robertson
149	Rutherford
159	Smith
165	Sumner
169	Trousdale
187	Williamson
189	Wilson

04 Plateau

007	Bledsoe
013	Campbell
035	Cumberland
049	Fentress
051	Franklin
061	Grundy
115	Marion
129	Morgan
133	Overton
137	Pickett
141	Putnam
151	Scott
153	Sequatchie
175	Van Buren
177	Warren
185	White

05 East

001	Anderson
009	Blount
011	Bradley
019	Carter
025	Claiborne
029	Cocke
057	Grainger
059	Greene
063	Hamblen
065	Hamilton
067	Hancock
073	Hawkins
089	Jefferson
091	Johnson
093	Knox
105	Loudon
107	McMinn
121	Meigs
123	Monroe
139	Polk
143	Rhea
145	Roane
155	Sevier
163	Sullivan
171	Unicoi
173	Union
179	Washington

48 Texas

01 Southeast

005	Angelina
071	Chambers
185	Grimes
199	Hardin
201	Harris
225	Houston
241	Jasper
245	Jefferson
289	Leon
291	Liberty
313	Madison
339	Montgomery
351	Newton
361	Orange
373	Polk
403	Sabine
405	San Augustine
407	San Jacinto
455	Trinity
457	Tyler
471	Walker
473	Waller

02 Northeast

001	Anderson
037	Bowie
063	Camp
067	Cass
073	Cherokee
159	Franklin
183	Gregg
203	Harrison
213	Henderson
315	Marion
343	Morris
347	Nacogdoches
365	Panola
387	Red River
401	Rusk
419	Shelby
423	Smith
449	Titus
459	Upshur
467	Van Zandt
499	Wood

Unsampled counties

003	Andrews	103	Crane	205	Hartley
007	Aransas	105	Crockett	207	Haskell
009	Archer	107	Crosby	209	Hays
011	Armstrong	109	Culberson	211	Hemphill
013	Atascosa	111	Dallam	215	Hidalgo
015	Austin	113	Dallas	217	Hill
017	Bailey	115	Dawson	219	Hockley
019	Bandera	117	Deaf Smith	221	Hood
021	Bastrop	119	Delta	223	Hopkins
023	Baylor	121	Denton	227	Howard
025	Bee	123	DeWitt	229	Hudspeth
027	Bell	125	Dickens	231	Hunt
029	Bexar	127	Dimmit	233	Hutchinson
031	Blanco	129	Donley	235	Irion
033	Borden	131	Duval	237	Jack
035	Bosque	133	Eastland	239	Jackson
039	Brazoria	135	Ector	243	Jeff Davis
041	Brazos	137	Edwards	247	Jim Hogg
043	Brewster	139	Ellis	249	Jim Wells
045	Briscoe	141	El Paso	251	Johnson
047	Brooks	143	Erath	253	Jones
049	Brown	145	Falls	255	Karnes
051	Burleson	147	Fannin	257	Kaufman
053	Burnet	149	Fayette	259	Kendall
055	Caldwell	151	Fisher	261	Kenedy
057	Calhoun	153	Floyd	263	Kent
059	Callahan	155	Foard	265	Kerr
061	Cameron	157	Fort Bend	267	Kimble
065	Carson	161	Freestone	269	King
069	Castro	163	Frio	271	Kinney
075	Childress	165	Gaines	273	Kleberg
077	Clay	167	Galveston	275	Knox
079	Cochran	169	Garza	277	Lamar
081	Coke	171	Gillespie	279	Lamb
083	Coleman	173	Glasscock	281	Lampasas
085	Collin	175	Goliad	283	La Salle
087	Collingsworth	177	Gonzales	285	Lavaca
089	Colorado	179	Gray	287	Lee
091	Comal	181	Grayson	293	Limestone
093	Comanche	187	Guadalupe	295	Lipscomb
095	Concho	189	Hale	297	Live Oak
097	Cooke	191	Hall	299	Llano
099	Coryell	193	Hamilton	301	Loving
101	Cottle	195	Hansford	303	Lubbock
		197	Hardeman	305	Lynn

307	McCulloch	429	Stephens	051	Wasatch
309	McLennan	431	Sterling	057	Weber
311	McMullen	433	Stonewall		
317	Martin	435	Sutton	**02**	**Uinta**
319	Mason	437	Swisher	009	Daggett
321	Matagorda	439	Tarrant	013	Duchesne
323	Maverick	441	Taylor	047	Uintah
325	Medina	443	Terrell		
327	Menard	445	Terry	**03**	**Central**
329	Midland	447	Throckmorton	023	Juab
331	Milam	451	Tom Green	027	Millard
333	Mills	453	Travis	031	Piute
335	Mitchell	461	Upton	039	Sanpete
337	Montague	463	Uvalde	041	Sevier
341	Moore	465	Val Verde	055	Wayne
345	Motley	469	Victoria		
349	Navarro	475	Ward	**04**	**Eastern**
353	Nolan	477	Washington	007	Carbon
355	Nueces	479	Webb	015	Emery
357	Ochiltree	481	Wharton	019	Grand
359	Oldham	483	Wheeler	037	San Juan
363	Palo Pinto	485	Wichita		
367	Parker	487	Wilbarger	**05**	**Southwestern**
369	Parmer	489	Willacy	001	Beaver
371	Pecos	491	Williamson	017	Garfield
375	Potter	493	Wilson	021	Iron
377	Presidio	495	Winkler	025	Kane
379	Rains	497	Wise	053	Washington
381	Randall	501	Yoakum		
383	Reagan	503	Young		
385	Real	505	Zapata	**50**	**Vermont**
389	Reeves	507	Zavala	**02**	**Northern**
391	Refugio			005	Caledonia
393	Roberts			009	Essex
395	Robertson			011	Franklin
397	Rockwall	**49**	**Utah**	013	Grand Isle
399	Runnels	**01**	**Northern**	015	Lamoille
409	San Patricio	003	Box Elder	017	Orange
411	San Saba	005	Cache	019	Orleans
413	Schleicher	011	Davis	023	Washington
415	Scurry	029	Morgan		
417	Shackelford	033	Rich	**03**	**Southern**
421	Sherman	035	Salt Lake	001	Addison
425	Somervell	043	Summit	003	Bennington
427	Starr	045	Tooele	007	Chittenden
		049	Utah		

021	Rutland	029	Buckingham	161	Roanoke
025	Windham	031	Campbell	163	Rockbridge
027	Windsor	037	Charlotte	165	Rockingham
		049	Cumberland	171	Shenandoah
		067	Franklin	187	Warren

51   Virginia

		083	Halifax		
01	**Coastal Plain**	089	Henry	**05**	**Southern Mountains**
001	Accomack	111	Lunenburg	021	Bland
025	Brunswick	117	Mecklenburg	027	Buchanan
033	Caroline	135	Nottoway	035	Carroll
036	Charles City	141	Patrick	051	Dickenson
041	Chesterfield	143	Pittsylvania	063	Floyd
053	Dinwiddie	145	Powhatan	071	Giles
057	Essex	147	Prince Edward	077	Grayson
073	Gloucester			105	Lee
081	Greensville			121	Montgomery
085	Hanover	**03**	**Northern Piedmont**	155	Pulaski
087	Henrico	003	Albemarle	167	Russell
093	Isle of Wight	009	Amherst	169	Scott
095	James City	013	Arlington	173	Smyth
097	King and Queen	047	Culpeper	185	Tazewell
099	King George	059	Fairfax	191	Washington
101	King William	061	Fauquier	195	Wise
103	Lancaster	065	Fluvanna	197	Wythe
115	Mathews	075	Goochland		
119	Middlesex	079	Greene		**Unsampled cities**
127	New Kent	107	Loudoun	510	Alexandria city
131	Northampton	109	Louisa	515	Bedford city
133	Northumberland	113	Madison	520	Bristol city
149	Prince George	125	Nelson	530	Buena Vista city
159	Richmond	137	Orange	540	Charlottesville city
175	Southampton	153	Prince William	560	Clifton Forge city
181	Surry	157	Rappahannock	570	Colonial Heights city
183	Sussex	177	Spotsylvania	580	Covington city
193	Westmoreland	179	Stafford	590	Danville city
199	York			595	Emporia city
550	Chesapeake city			600	Fairfax city
650	Hampton city	**04**	**Northern Mountains**	610	Falls Church city
700	Newport News city	005	Alleghany	620	Franklin city
800	Suffolk city	015	Augusta	630	Fredericksburg city
810	Virginia Beach city	017	Bath	640	Galax city
		023	Botetourt	660	Harrisonburg city
		043	Clarke	670	Hopewell city
02	**Southern Piedmont**	045	Craig	678	Lexington city
007	Amelia	069	Frederick	680	Lynchburg city
011	Appomattox	091	Highland		
019	Bedford	139	Page		

683	Manassas city
685	Manassas Park city
690	Martinsville city
710	Norfolk city
720	Norton city
730	Petersburg city
735	Poquoson city
740	Portsmouth city
750	Radford city
760	Richmond city
770	Roanoke city
775	Salem city
780	South Boston city
790	Staunton city
820	Waynesboro city
830	Williamsburg city
840	Winchester city

53 Washington
05 Puget Sound
029	Island
033	King
035	Kitsap
053	Pierce
055	San Juan
057	Skagit
061	Snohomish
073	Whatcom

06 Olympic Peninsula
009	Clallam
027	Grays Harbor
031	Jefferson
045	Mason
067	Thurston

07 Southwest
011	Clark
015	Cowlitz
041	Lewis
049	Pacific
059	Skamania
069	Wahkiakum

08 Central
001	Adams
003	Asotin
005	Benton
013	Columbia
019	Ferry
021	Franklin
023	Garfield
025	Grant
043	Lincoln
051	Pend Oreille
063	Spokane
065	Stevens
071	Walla Walla
075	Whitman

09 Inland Empire
007	Chelan
017	Douglas
037	Kittitas
039	Klickitat
047	Okanogan
077	Yakima

54 West Virginia
02 Northeastern
001	Barbour
003	Berkeley
007	Braxton
023	Grant
027	Hampshire
031	Hardy
033	Harrison
037	Jefferson
041	Lewis
057	Mineral
065	Morgan
071	Pendleton
075	Pocahontas
077	Preston
083	Randolph
091	Taylor
093	Tucker
097	Upshur
101	Webster

03 Southern
005	Boone
015	Clay
019	Fayette
025	Greenbrier
039	Kanawha
045	Logan
047	McDowell
055	Mercer
059	Mingo
063	Monroe
067	Nicholas
081	Raleigh
089	Summers
109	Wyoming

04 Northwestern
009	Brooke
011	Cabell
013	Calhoun
017	Doddridge
021	Gilmer
029	Hancock
035	Jackson
043	Lincoln
049	Marion
051	Marshall
053	Mason
061	Monongalia
069	Ohio
073	Pleasants
079	Putnam
085	Ritchie
087	Roane
095	Tyler
099	Wayne
103	Wetzel
105	Wirt
107	Wood

55 Wisconsin
01 Northeastern
| 037 | Florence |
| 041 | Forest |

067	Langlade	065	Lafayette
069	Lincoln	091	Pepin
075	Marinette	093	Pierce
078	Menominee	103	Richland
083	Oconto	109	St. Croix
085	Oneida	111	Sauk
115	Shawano	121	Trempealeau
125	Vilas	123	Vernon

02   Northwestern

003	Ashland
005	Barron
007	Bayfield
013	Burnett
031	Douglas
051	Iron
095	Polk
099	Price
107	Rusk
113	Sawyer
119	Taylor
129	Washburn

03   Central

001	Adams
017	Chippewa
019	Clark
035	Eau Claire
053	Jackson
057	Juneau
073	Marathon
077	Marquette
081	Monroe
097	Portage
135	Waupaca
137	Waushara
141	Wood

04   Southwestern

011	Buffalo
023	Crawford
033	Dunn
043	Grant
049	Iowa
063	La Crosse

05   Southeastern

009	Brown
015	Calumet
021	Columbia
025	Dane
027	Dodge
029	Door
039	Fond du Lac
045	Green
047	Green Lake
055	Jefferson
059	Kenosha
061	Kewaunee
071	Manitowoc
079	Milwaukee
087	Outagamie
089	Ozaukee
101	Racine
105	Rock
117	Sheboygan
127	Walworth
131	Washington
133	Waukesha
139	Winnebago

56   Wyoming

01   Western

013	Fremont
017	Hot Springs
023	Lincoln
029	Park
035	Sublette
037	Sweetwater
039	Teton
041	Uinta

02   Central and Southeastern

001	Albany
003	Big Horn
007	Carbon
009	Converse
015	Goshen
019	Johnson
021	Laramie
025	Natrona
027	Niobrara
031	Platte
033	Sheridan
043	Washakie

03   Northeastern

005	Campbell
011	Crook
045	Weston

72   Puerto Rico

01   Puerto Rico

001	Adjuntas
003	Aguada
005	Aguadilla
007	Aguas Buenas
009	Aibonito
011	Anasco
013	Arecibo
015	Arroyo
017	Barceloneta
019	Barranquitas
021	Bayamon
023	Cabo Rojo
025	Caguas
027	Camuy
029	Canovanas
031	Carolina
033	Catano
035	Cayey
037	Ceiba
039	Ciales
041	Cidra
043	Coamo
045	Comerio

047	Corozal	101	Morovis
049	Culebra	103	Naguabo
051	Dorado	105	Naranjito
053	Fajardo	107	Orocovis
054	Florida	109	Patillas
055	Guanica	111	Penuelas
057	Guayama	113	Ponce
059	Guayanilla	115	Quebradillas
061	Guaynabo	117	Rincon
063	Gurabo	119	Rio Grande
065	Hatillo	121	Sabana Grande
067	Hormigueros	123	Salinas
069	Humacao	125	San German
071	Isabela	127	San Juan
073	Jayuya	129	San Lorenzo
075	Juana Diaz	131	San Sebastian
077	Juncos	133	Santa Isabel
079	Lajas	135	Toa Alta
081	Lares	137	Toa Baja
083	Las Marias	139	Trujillo Alto
085	Las Piedras	141	Utuado
087	Loiza	143	Vega Alta
089	Luquillo	145	Vega Baja
091	Manati	147	Vieques
093	Maricao	149	Villalba
095	Maunabo	151	Yabucoa
097	Mayaguez	153	Yauco
099	Moca		

FOREST TYPE CODES AND NAMES

Code	Forest type/type group
100	**White / Red / Jack Pine Group**
101	Jack pine
102	Red pine
103	Eastern white pine
104	White pine / hemlock
105	Eastern hemlock
120	**Spruce / Fir Group**
121	Balsam fir
122	White spruce
123	Red spruce
124	Red spruce / balsam fir
125	Black spruce
126	Tamarack
127	Northern white-cedar
140	**Longleaf / Slash Pine Group**
141	Longleaf pine
142	Slash pine
160	**Loblolly / Shortleaf Pine Group**
161	Loblolly pine
162	Shortleaf pine
163	Virginia pine
164	Sand pine
165	Table Mountain pine
166	Pond pine
167	Pitch pine
168	Spruce pine
180	**Pinyon / Juniper Group**
181	Eastern redcedar
182	Rocky Mountain juniper
183	Western juniper
184	Juniper woodland
185	Pinyon juniper woodland

Code	Forest type/type group
200	**Douglas-fir Group**
201	Douglas-fir
202	Port-Orford-cedar
220	**Ponderosa Pine Group**
221	Ponderosa pine
222	Incense-cedar
223	Jeffrey pine / Coulter pine / bigcone Douglas-fir
224	Sugar pine
240	**Western White Pine Group**
241	Western white pine
260	**Fir / Spruce / Mountain Hemlock Group**
261	White fir
262	Red fir
263	Noble fir
264	Pacific silver fir
265	Engelmann spruce
266	Engelmann spruce / subalpine fir
267	Grand fir
268	Subalpine fir
269	Blue spruce
270	Mountain hemlock
271	Alaska-yellow-cedar
280	**Lodgepole Pine Group**
281	Lodgepole pine
300	**Hemlock / Sitka Spruce Group**
301	Western hemlock
304	Western redcedar
305	Sitka spruce
320	**Western Larch Group**
321	Western larch

Code	Forest type/type group	Code	Forest type/type group
340	**Redwood Group**	511	Yellow-poplar
341	Redwood	512	Black walnut
342	Giant sequoia	513	Black locust
		514	Southern scrub oak
360	**Other Western Softwoods Group**	515	Chestnut oak / black oak / scarlet oak
361	Knobcone pine	519	Red maple / oak
362	Southwest white pine	520	Mixed upland hardwoods
363	Bishop pine		
364	Monterey pine	**600**	**Oak / Gum / Cypress Group**
365	Foxtail pine / bristlecone pine	601	Swamp chestnut oak / cherrybark oak
366	Limber pine	602	Sweetgum / Nuttall oak / willow oak
367	Whitebark pine	605	Overcup oak / water hickory
368	Misc. western softwoods	606	Atlantic white-cedar
		607	Baldcypress / water tupelo
370	**California Mixed Conifer Group**	608	Sweetbay / swamp tupelo / red maple
371	California mixed conifer		
		700	**Elm / Ash / Cottonwood Group**
380	**Exotic Softwoods Group**	701	Black ash / American elm / red maple
381	Scotch pine	702	River birch / sycamore
382	Australian pine	703	Cottonwood
383	Other exotic softwoods	704	Willow
		705	Sycamore / pecan / American elm
400	**Oak / Pine Group**	706	Sugarberry / hackberry / elm / green ash
401	White pine / red oak / white ash	708	Red maple / lowland
402	Eastern redcedar / hardwood	709	Cottonwood / willow
403	Longleaf pine / oak	722	Oregon ash
404	Shortleaf pine / oak		
405	Virginia pine / southern red oak	**800**	**Maple / Beech / Birch Group**
406	Loblolly pine / hardwood	801	Sugar maple / beech / yellow birch
407	Slash pine / hardwood	802	Black cherry
409	Other pine / hardwood	803	Cherry / ash / yellow-poplar
		805	Hard maple / basswood
500	**Oak / Hickory Group**	807	Elm / ash / locust
501	Post oak / blackjack oak	809	Red maple / upland
502	Chestnut oak		
503	White oak / red oak / hickory	**900**	**Aspen / Birch Group**
504	White oak	901	Aspen
505	Northern red oak	902	Paper birch
506	Yellow-poplar / white oak / red oak	904	Balsam poplar
507	Sassafras / persimmon		
508	Sweetgum / yellow-poplar	**910**	**Alder / Maple Group**
509	Bur oak	911	Red alder
510	Scarlet oak	912	Bigleaf maple

Code	Forest type/type group
920	**Western Oak Group**
921	Gray pine
922	California black oak
923	Oregon white oak
924	Blue oak
925	Deciduous oak woodland
931	Coast live oak
932	Canyon live oak / interior live oak
940	**Tanoak / Laurel Group**
941	Tanoak
942	Califonia laurel
943	Giant chinkapin
950	**Other Western Hardwoods Group**
951	Pacific madrone
952	Mesquite woodland
953	Cercocarpus woodland
954	Intermountain maple woodland
955	Misc. western hardwood woodlands
980	**Tropical Hardwoods Group**
981	Sable palm
982	Mangrove
990	**Exotic Hardwoods Group**
991	Paulownia
992	Melaluca
993	Eucalyptus
995	Other exotic hardwoods
999	Non-stocked

NATIONAL FOREST CODES AND NAMES

Region	Code	National Forest/ Grassland/Area	Region	Code	National Forest/ Grassland/Area
Region 1	102	Beaverhead		218	Commanche NGL
	103	Bitterroot		219	Pawnee NGL
	104	Idaho Panhandle		220	Oglala NGL
	105	Clearwater		221	Buffalo Gap NGL
	108	Custer		222	Fort Pierre NGL
	109	Deerlodge		223	Thunder Basin NGL
	110	Flathead		299	Other NFS areas
	111	Gallatin			
	112	Helena	**Region 3**	301	Apache-Sitgreaves
	114	Kootenai		302	Carson
	115	Lewis and Clark		303	Cibola
	116	Lolo		304	Coconino
	117	Nez Perce		305	Coronado
	120	Cedar River NGL (National Grassland)		306	Gila
				307	Kaibab
	121	Little Missouri NGL		308	Lincoln
	122	Sheyenne NGL		309	Prescott
	124	Grand River NGL		310	Santa Fe
	199	Other NFS areas		312	Tonto
				399	Other NFS areas
Region 2	202	Bighorn	**Region 4**	401	Ashley
	203	Black Hills		402	Boise
	204	Grand Mesa-Uncompahgre-Gunnison		403	Bridger-Teton
				405	Caribou
	206	Medicine Bow		406	Challis
	207	Nebraska		407	Dixie
	209	Rio Grande		408	Fishlake
	210	Arapaho-Roosevelt		409	Humboldt
	211	Routt		410	Manti-La Sal
	212	Pike and San Isabel		412	Payette
	213	San Juan		413	Salmon
	214	Shoshone		414	Sawtooth
	215	White River		415	Targhee
	217	Cimarron NGL		417	Toiyabe
				418	Uinta

Region	Code	National Forest/Grassland/Area	Region	Code	National Forest/Grassland/Area
	419	Wasatch-Cache		621	Colville
	420	Desert Range Experiment Station		699	Other NFS areas
	499	Other NFS areas	**Region 8**	801	NFS in Alabama
				802	Daniel Boone
Region 5	501	Angeles		803	Chattahoochee-Oconee
	502	Cleveland		804	Cherokee
	503	Eldorado		805	NFS in Florida
	504	Inyo		806	Kisatchie
	505	Klamath		807	NFS in Mississippi
	506	Lassen		808	George Washington
	507	Los Padres		809	Ouachita
	508	Mendocino		810	Ozark and St. Francis
	509	Modoc		811	NFS in North Carolina
	510	Six Rivers		812	Francis Marion-Sumter
	511	Plumas		813	NFS in Texas
	512	San Bernardino		814	Jefferson
	513	Sequoia		816	Caribbean
	514	Shasta-Trinity		899	Other NFS areas
	515	Sierra			
	516	Stanislaus	**Region 9**	902	Chequamegon
	517	Tahoe		903	Chippewa
	519	Lake Tahoe Basin		904	Huron-Manistee
	599	Other NFS areas		905	Mark Twain
				906	Nicolet
Region 6	601	Deschutes		907	Ottawa
	602	Fremont		908	Shawnee
	603	Gifford Pinchot		909	Superior
	604	Malheur		910	Hiawatha
	605	Mt. Baker-Snoqualmie		911	Hoosier
	606	Mt. Hood		918	Wayne
	607	Ochoco		919	Allegheny
	608	Okanogan		920	Green Mountain
	609	Olympic		921	Monongahela
	610	Rogue River		922	White Mountain
	611	Siskiyou		999	Other NFS areas
	612	Siuslaw			
	614	Umatilla	**Region 10**	002	Tongass-Stikine Area
	615	Umpqua		003	Tongass-Chatham Area
	616	Wallowa-Whitman		004	Chugach
	617	Wenatchee		005	Tongass-Ketchikan Area
	618	Willamette		099	Other NFS areas
	620	Winema			

TREE SPECIES CODES, NAMES, AND OCCURRENCES

This appendix shows how FIA units group trees of various species into 4 major species groups (MAJGRP) and 48 species groups (SPGRPCD). The major species groups are: 1) pine, 2) other softwoods, 3) soft hardwoods, and 4) hard hardwoods. The names for the 48 species groups (SPGRPCD) can be found in Appendix G. Species found in both an eastern FIA unit (NC, NE, SO) and a western FIA unit (PNW, RM) have two species group codes—one used by the eastern units and one used by the western units.

The last five columns of this table show which species each FIA unit has measured in previous inventories. An X in a column indicates that the project measures the diameter at breast height for this species. An R indicates that the diameter is measured at the root collar.

The list is ordered by species code (SPP). Codes 1-299 are softwood species. Codes 300-999 are hardwood species. Within each group, species are generally ordered alphabetically by genus and species.

						Species occurrence by FIA unit				
SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	NC	NE	PNW	RM	SO
10	fir spp.	*Abies*	*spp.*	6	2		X			X
11	Pacific silver fir	*Abies*	*amabilis*	12	2			X		
12	balsam fir	*Abies*	*balsamea*	6	2	X	X			X
14	Santa Lucia fir	*Abies*	*bracteata*	12	2			X		
15	white fir	*Abies*	*concolor*	12	2			X	X	
16	Fraser fir	*Abies*	*fraseri*	9	2					X
17	grand fir	*Abies*	*grandis*	12	2			X	X	
18	corkbark fir	*Abies*	*lasiocarpa var. arizonica*	12	2				X	
19	subalpine fir	*Abies*	*lasiocarpa*	12	2			X	X	
20	California red fir	*Abies*	*magnifica*	12	2			X	X	
21	Shasta red fir	*Abies*	*magnifica var. shastensis*	12	2			X		
22	noble fir	*Abies*	*procera*	12	2			X		
41	Port-Orford-cedar	*Chamaecyparis*	*lawsoniana*	24	2			X		
42	Alaska yellow-cedar	*Chamaecyparis*	*nootkatensis*	24	2			X		
43	Atlantic white-cedar	*Chamaecyparis*	*thyoides*	9	2	X				X
50	cypress	*Cupressus*	*spp.*	24	2			X	X	
51	Arizona cypress	*Cupressus*	*arizonica*	23	2			X	X	
52	Baker cypress	*Cupressus*	*bakeri*	24	2					
53	Tecate cypress	*Cupressus*	*guadalupensis var. forbesii*	24	2					
54	Monterey cypress	*Cupressus*	*macrocarpa*	24	2					
55	Sargent cypress	*Cupressus*	*sargentii*	24	2					
57	redcedar / juniper	*Juniperus*	*spp.*	23	2	X				X
58	Pinchot juniper	*Juniperus*	*pinchotii*	23	2				R	
59	redberry juniper	*Juniperus*	*erythrocarpa*	23	2				R	

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
61	Ashe juniper	*Juniperus*	*ashei*	9	2					
62	California juniper	*Juniperus*	*californica*	23	2			X	R	
63	alligator juniper	*Juniperus*	*deppeana*	23	2				R	
64	western juniper	*Juniperus*	*occidentalis*	23	2			X	R	
65	Utah juniper	*Juniperus*	*osteosperma*	23	2			X	R	
66	Rocky Mountain juniper	*Juniperus*	*scopulorum*	9East,23West	2	X		X	R	
67	southern redcedar	*Juniperus*	*silicicola*	9	2					X
68	eastern redcedar	*Juniperus*	*virginiana*	9	2	X	X			X
69	oneseed juniper	*Juniperus*	*monosperma*	23	2				R	
70	larch (introduced)	*Larix*	*spp.*	9	2	X	X			
71	tamarack (native)	*Larix*	*laricina*	9East,24West	2	X	X			
72	subalpine larch	*Larix*	*lyallii*	24	2			X	X	
73	western larch	*Larix*	*occidentalis*	19	2			X	X	
81	incense-cedar	*Calocedrus*	*decurrens*	20	2			X	X	
90	spruce spp.	*Picea*	*spp.*	6	2		X			X
91	Norway spruce	*Picea*	*abies*	9	2	X	X			
92	Brewer spruce	*Picea*	*breweriana*	18	2			X		
93	Engelmann spruce	*Picea*	*engelmannii*	9East,18West	2	X		X	X	
94	white spruce	*Picea*	*glauca*	6East,18West	2	X	X	X	X	
95	black spruce	*Picea*	*mariana*	6East,23West	2	X	X	X		X
96	blue spruce	*Picea*	*pungens*	9East,18West	2	X	X		X	
97	red spruce	*Picea*	*rubens*	6	2		X			X
98	Sitka spruce	*Picea*	*sitchensis*	17	2			X		
101	whitebark pine	*Pinus*	*albicaulis*	24	1			X	X	
102	bristlecone pine	*Pinus*	*aristata*	24	1			X	X	
103	knobcone pine	*Pinus*	*attenuata*	24	1			X		
104	foxtail pine	*Pinus*	*balfouriana*	24	1			X		
105	jack pine	*Pinus*	*banksiana*	5	1	X	X			
106	common pinyon	*Pinus*	*edulis*	23	1			X	R	
107	sand pine	*Pinus*	*clausa*	3	1					X
108	lodgepole pine	*Pinus*	*contorta*	21	1			X	X	
109	Coulter pine	*Pinus*	*coulteri*	24	1			X		
110	shortleaf pine	*Pinus*	*echinata*	2	1	X	X			X
111	slash pine	*Pinus*	*elliottii*	1	1					X
112	Apache pine	*Pinus*	*engelmannii*	24	1				X	
113	limber pine	*Pinus*	*flexilis*	24	1			X	X	
114	southwestern white pine	*Pinus*	*strobiformus*	24	1				X	
115	spruce pine	*Pinus*	*glabra*	3	1					X
116	Jeffrey pine	*Pinus*	*jeffreyi*	11	1			X	X	
117	sugar pine	*Pinus*	*lambertiana*	14	1			X	X	
118	Chihuahua pine	*Pinus*	*leiophylla var. chihuahuana*	24	1				X	
119	western white pine	*Pinus*	*monticola*	15	1			X	X	
120	bishop pine	*Pinus*	*muricata*	24	1			X		
121	longleaf pine	*Pinus*	*palustris*	1	1					X

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
122	ponderosa pine	*Pinus*	*ponderosa*	9East,11West	1	X		X	X	X
123	Table Mountain pine	*Pinus*	*pungens*	3	1		X			X
124	Monterey pine	*Pinus*	*radiata*	24	1			X		
125	red pine	*Pinus*	*resinosa*	4	1	X	X			
126	pitch pine	*Pinus*	*rigida*	3	1		X			X
127	gray pine	*Pinus*	*sabiniana*	24	1			X		
128	pond pine	*Pinus*	*serotina*	3	1		X			X
129	eastern white pine	*Pinus*	*strobus*	4	1	X	X			X
130	Scotch pine	*Pinus*	*sylvestris*	3East,13West	1	X	X	X		
131	loblolly pine	*Pinus*	*taeda*	2	1	X	X			X
132	Virginia pine	*Pinus*	*virginiana*	3	1	X	X			X
133	singleleaf pinyon	*Pinus*	*monophylla*	23	1			X	R	
134	border pinyon	*Pinus*	*discolor*	23	1				R	
135	Arizona pine	*Pinus*	*ponderosa var. arizonica*	11	1				X	
136	Austrian pine	*Pinus*	*nigra*	9	1	X	X			
137	Washoe pine	*Pinus*	*washoensis*	24	1				X	
138	four-needle pinyon	*Pinus*	*quadrifolia*	24	1					
139	Torrey pine	*Pinus*	*torreyana*	24	1					
140	Mexican pinyon pine	*Pinus*	*cembroides*	24	1				R	
142	Great Basin bristlecone pine	*Pinus*	*longaeva*	24	1				R	
143	Arizona pinyon pine	*Pinus*	*monophylla var. fallax*	24	1				R	
201	bigcone Douglas-fir	*Pseudotsuga*	*macrocarpa*	24	2			X		
202	Douglas-fir	*Pseudotsuga*	*menziesii*	9East,10West	2	X	X	X	X	
211	redwood	*Sequoia*	*sempervirens*	16	2			X		
212	giant sequoia	*Sequoiadendron*	*giganteum*	24	2			X		
221	baldcypress	*Taxodium*	*distichum*	8	2	X	X			X
222	pondcypress	*Taxodium*	*distichum var. nutans*	8	2					X
231	Pacific yew	*Taxus*	*brevifolia*	23	2			X	R	
241	northern white-cedar	*Thuja*	*occidentalis*	9	2	X	X			X
242	western redcedar	*Thuja*	*plicata*	22	2			X	X	
251	California torrey (nutmeg)	*Torreya*	*californica*	24	2			X		
252	Florida torreya	*Torreya*	*taxifolia*	9	2					X
260	hemlock spp.	*Tsuga*	*spp.*	7	2		X			X
261	eastern hemlock	*Tsuga*	*canadensis*	7	2	X	X			X
262	Carolina hemlock	*Tsuga*	*caroliniana*	7	2					X
263	western hemlock	*Tsuga*	*heterophylla*	13	2			X	X	
264	mountain hemlock	*Tsuga*	*mertensiana*	24	2			X	X	
270	Australian-pine	*Casuarina*	*spp.*	9East,24West	2					X
300	acacia	*Acacia*	*spp.*	41East,48West	3	X		X	R	
310	maple spp.	*Acer*	*spp.*	31	4		X			
311	Florida maple	*Acer*	*barbatum*	31	4					X
312	bigleaf maple	*Acer*	*macrophyllum*	47	3			X		
313	boxelder	*Acer*	*negundo*	41	3	X	X	X	R	X

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
314	black maple	*Acer*	*nigrum*	31	4	X	X			X
315	striped maple	*Acer*	*pensylvanicum*	43	3	X	X			X
316	red maple	*Acer*	*rubrum*	32	3	X	X			X
317	silver maple	*Acer*	*saccharinum*	32	3	X	X			X
318	sugar maple	*Acer*	*saccharum*	31	4	X	X			X
319	mountain maple	*Acer*	*spicatum*	43	4	X	X			X
320	Norway maple	*Acer*	*platanoides*	31	4		X			
321	Rocky Mountain maple	*Acer*	*glabrum*	43East,48West	4	X		X	R	
322	bigtooth maple	*Acer*	*grandidentatum*	48	4			X	R	
323	chalk maple	*Acer*	*leucoderme*	31	4					
330	buckeye, horsechestnut	*Aesculus*	*spp.*	41East,47West	3	X	X	X		X
331	Ohio buckeye	*Aesculus*	*glabra*	41	3	X	X			X
332	yellow buckeye	*Aesculus*	*octandra*	41	3	X	X			X
333	California buckeye	*Aesculus*	*californica*	41	3			X		
334	Texas buckeye	*Aesculus*	*glabra var. arguta*	41	3					
341	ailanthus	*Ailanthus*	*altissima*	43East,47West	4	X	X			X
345	mimosa/silktree	*Albizia*	*julibrissin*	43	3	X				
351	red alder	*Alnus*	*rubra*	45	3			X		
352	white alder	*Alnus*	*rhombifolia*	47	3			X		
355	European alder	*Alnus*	*glutinosa*	41East,47West	3					
356	serviceberry	*Amelanchier*	*spp.*	43	4		X			X
361	Pacific madrone	*Arbutus*	*menziesii*	47	4			X		
367	pawpaw	*Asimina*	*triloba*	43	3		X			
370	birch spp.	*Betula*	*spp.*	41	4		X			X
371	yellow birch	*Betula*	*alleghaniensis*	30	4	X	X			X
372	sweet birch	*Betula*	*lenta*	42	4	X	X			X
373	river birch	*Betula*	*nigra*	41	3	X	X			X
374	water birch	*Betula*	*occidentalis*	41East,47West	3			X		
375	paper birch	*Betula*	*papyrifera*	41East,47West	3	X	X		X	
376	western paper birch	*Betula*	*papyrifera var. commutata*	47	3			X		
378	northwestern paper birch	*Betula*	*papyrifera var. subcordata*	47	3			X		
379	gray birch	*Betula*	*populifolla*	41	3	X	X			X
381	chittamwood, gum bumelia	*Bumelia*	*lanuginosa*	43	4	X				X
391	American hornbeam, musclewood	*Carpinus*	*caroliniana*	43	4	X	X			X
400	hickory spp.	*Carya*	*spp.*	29	4		X			X
401	water hickory	*Carya*	*aquatica*	29	4	X				X
402	bitternut hickory	*Carya*	*cordiformis*	29	4	X	X			
403	pignut hickory	*Carya*	*glabra*	29	4	X	X			
404	pecan	*Carya*	*illinoensis*	29	4	X	X			X
405	shellbark hickory	*Carya*	*laciniosa*	29	4	X	X			
406	nutmeg hickory	*Carya*	*myristiciformis*	29	4					X
407	shagbark hickory	*Carya*	*ovata*	29	4	X	X			

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
408	black hickory	*Carya*	*texana*	29	4	X				
409	mockernut hickory	*Carya*	*tomentosa*	29	4	X	X			
410	sand hickory	*Carya*	*pallida*	29	4					X
421	American chestnut	*Castanea*	*dentata*	43	3	X	X			X
422	Allegheny chinkapin	*Castanea*	*pumila*	41	3					X
423	Ozark chinkapin	*Castanea*	*ozarkensis*	43	3	X				
430	chinkapin	*Castanopsis*	*spp.*	43	4					X
431	giant chinkapin, golden chinkapin	*Castanopsis*	*chrysophylla*	47	3			X		
450	catalpa spp.	*Catalpa*	*spp.*	42	4		X			X
451	southern catalpa	*Catalpa*	*bignonioides*	43	4					X
452	northern catalpa	*Catalpa*	*speciosa*	41	3	X	X			
460	hackberry spp.	*Celtis*	*spp.*	41	3		X			X
461	sugarberry	*Celtis*	*laevigata*	41	3	X	X			X
462	hackberry	*Celtis*	*occidentalis*	41	3	X	X			X
463	netleaf hackberry	*Celtis*	*reticulata*	41	3	X				
471	eastern redbud	*Cercis*	*canadensis*	43	3	X	X			X
475	curlleaf mountain-mahogany	*Cercocarpus*	*ledifolius*	48	4			X	R	
481	yellowwood	*Cladrastis*	*kentukea*	43	4	X				
491	flowering dogwood	*Cornus*	*florida*	42	4	X	X			X
492	Pacific dogwood	*Cornus*	*nuttallii*	47	4			X		
500	hawthorn	*Crataegus*	*spp.*	43	4	X	X			X
501	cockspur hawthorn	*Crataegus*	*crus-galli*	43	4					
502	downy hawthorn	*Crataegus*	*mollis*	43	4					
510	eucalyptus	*Eucalyptus*	*spp.*	47	4			X		
521	common persimmon	*Diospyros*	*virginiana*	42	4	X	X			X
531	American beech	*Fagus*	*grandifolia*	33	4	X	X			X
540	ash spp.	*Fraxinus*	*spp.*	36	3		X			X
541	white ash	*Fraxinus*	*americana*	36	4	X	X			X
542	Oregon ash	*Fraxinus*	*latifolia*	47	4			X		
543	black ash	*Fraxinus*	*nigra*	36	3	X	X			X
544	green ash	*Fraxinus*	*pennsylvanica*	36	4	X	X			X
545	pumpkin ash	*Fraxinus*	*profunda*	36	3	X	X			X
546	blue ash	*Fraxinus*	*quadrangulata*	36	4	X	X			X
547	velvet ash	*Fraxinus*	*velutina*	47	4					
548	Carolina ash	*Fraxinus*	*caroliniana*	36	4					X
551	waterlocust	*Gleditsia*	*aquatica*	42	4	X				X
552	honeylocust	*Gleditsia*	*triacanthos*	42	4	X	X			X
555	loblolly-bay	*Gordonia*	*lasianthus*	41	3					X
571	Kentucky coffeetree	*Gymnocladus*	*dioicus*	42	4	X	X			X
580	silverbell	*Halesia*	*spp.*	41	3					X
591	American holly	*Ilex*	*opaca*	42	4		X			X
600	walnut spp.	*Juglans*	*spp.*	47	4	X	X			

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
601	butternut	*Juglans*	*cinerea*	41	3	X	X			X
602	black walnut	*Juglans*	*nigra*	40	4	X	X			X
603	California black walnut	*Juglans*	*hindsii*	47	4					
604	southern California black walnut	*Juglans*	*californica*	47	4					
605	Texas walnut	*Juglans*	*microcarpa*	41East,47West	4					
611	sweetgum	*Liquidambar*	*styraciflua*	34	3	X	X			X
621	yellow-poplar	*Liriodendron*	*tulipifera*	39	3	X	X			X
631	tanoak	*Lithocarpus*	*densiflorus*	47	4			X		
641	Osage-orange	*Maclura*	*pomifera*	43	4	X	X			X
650	magnolia spp.	*Magnolia*	*spp.*	41	3		X			
651	cucumbertree	*Magnolia*	*acuminata*	41	3	X	X			X
652	southern magnolia	*Magnolia*	*grandiflora*	41	3					X
653	sweetbay	*Magnolia*	*virginiana*	41	3		X			X
654	bigleaf magnolia	*Magnolia*	*macrophylla*	43	4					X
655	mountain magnolia	*Magnolia*	*fraseri*	41	3					X
660	apple spp.	*Malus*	*spp.*	43	4	X	X	X		X
661	Oregon crab apple	*Malus*	*fusca*	47	4					
680	mulberry spp.	*Morus*	*spp.*	42	4		X			X
681	white mulberry	*Morus*	*alba*	42	4	X	X			X
682	red mulberry	*Morus*	*rubra*	42	4	X	X			X
691	water tupelo	*Nyssa*	*aquatica*	35	3	X				X
692	Ogeechee tupelo	*Nyssa*	*ogeche*	43	4					X
693	blackgum	*Nyssa*	*sylvatica*	35	3	X	X			X
694	swamp tupelo	*Nyssa*	*sylvatica var. biflora*	35	3	X	X			X
701	eastern hophornbeam	*Ostrya*	*virginiana*	43	4	X	X			X
711	sourwood	*Oxydendrum*	*arboreum*	43	4		X			X
712	paulownia, empress-tree	*Paulownia*	*tomentosa*	41	3		X			X
721	redbay	*Persea*	*borbonia*	41	3					X
722	water-elm, planertree	*Planera*	*aquatica*	43	3					X
730	California sycamore	*Platanus*	*racemosa*	47	3			X		
731	sycamore	*Platanus*	*occidentallis*	41	3	X	X			X
740	cottonwood and poplar spp.	*Populus*	*spp.*	37East,44West	3		X		X	X
741	balsam poplar	*Populus*	*balsamifera*	37East,44West	3	X	X		X	
742	eastern cottonwood	*Populus*	*deltoides*	37	3	X	X		X	
743	bigtooth aspen	*Populus*	*grandidentata*	37	3	X	X			
744	swamp cottonwood	*Populus*	*heterophylla*	37	3	X	X			
745	plains cottonwood	*Populus*	*deltoides spp. monilifera*	37East,44West	3	X			X	
746	quaking aspen	*Populus*	*tremuloides*	37East,44West	3	X	X	X	X	
747	black cottonwood	*Populus*	*trichocarpa*	37East,44West	4			X	X	
748	Fremont cottonwood, Rio Grande cottonwood	*Populus*	*fremontii, deltoides spp. wislizeni*	37East,44West	4			X	X	
749	narrowleaf cottonwood	*Populus*	*angustifolia*	37East,44West	3	X			X	
752	silver poplar	*Populus*	*alba*	37	3	X				

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
755	mesquite	*Prosopis*	*spp.*	48	4				R	X
756	western honey mesquite	*Prosopis*	*glandulosa var .* *torreyana*	48	4				R	
757	velvet mesquite	*Prosopis*	*velutina*	48	4				R	
758	screwbean mesquite	*Prosopis*	*pubescens*	48	4				R	
760	cherry and plum spp.	*Prunus*	*spp.*	43	4		X	X	R	X
761	pin cherry	*Prunus*	*pensylvanica*	43	3	X	X			
762	black cherry	*Prunus*	*serotina*	41	3	X	X			X
763	chokecherry	*Prunus*	*virginiana*	43	4	X	X			
765	Canada plum	*Prunus*	*nigra*	43	4	X				
766	wild plum	*Prunus*	*americana*	43	4	X				
768	bitter cherry	*Prunus*	*emarginata*	47	4				R	
800	oak spp. — deciduous	*Quercus*	*spp.*	48	4		X		R	
801	coast live oak	*Quercus*	*agrifolia*	48	4			X		
802	white oak	*Quercus*	*alba*	25	4	X	X			X
803	Arizona white oak	*Quercus*	*arizonica*	48	4				R	
803	and gray oak	*Quercus*	*grisea*	48	4				R	
804	swamp white oak	*Quercus*	*bicolor*	25	4	X	X			X
805	canyon live oak	*Quercus*	*chrysolepsis*	46	4			X		
806	scarlet oak	*Quercus*	*coccinea*	28	4	X	X			X
807	blue oak	*Quercus*	*douglasii*	46	4			X		
808	Durand oak	*Quercus*	*durandii*	25	4					X
809	northern pin oak	*Quercus*	*ellipsoidalis*	28	4	X	X			
810	Emory oak	*Quercus*	*emoryi*	48	4				R	
811	Engelmann oak	*Quercus*	*engelmannii*	46	4			X		
812	southern red oak	*Quercus*	*falcata var. falcata*	28	4	X	X			X
813	cherrybark oak	*Quercus*	*falcata var. pagodifolia*	26	4	X	X			X
814	Gambel oak	*Quercus*	*gambelii*	48	4				R	
815	Oregon white oak	*Quercus*	*garryana*	46	4			X		
816	bear oak, scrub oak	*Quercus*	*ilicifolia*	43	4		X			X
817	shingle oak	*Quercus*	*imbricaria*	28	4	X	X			X
818	California black oak	*Quercus*	*kelloggii*	46	4			X		
819	turkey oak	*Quercus*	*laevis*	43	4					X
820	laurel oak	*Quercus*	*laurifolia*	28	4		X			X
821	California white oak	*Quercus*	*lobata*	46	4			X		
822	overcup oak	*Quercus*	*lyrata*	27	4	X	X			X
823	bur oak	*Quercus*	*macrocarpa*	25	4	X	X			X
824	blackjack oak	*Quercus*	*marilandica*	28	4	X	X			X
825	swamp chestnut oak	*Quercus*	*michauxii*	25	4	X	X			X
826	chinkapin oak	*Quercus*	*muehlenbergii*	25East,48West	4	X	X		R	X
827	water oak	*Quercus*	*nigra*	28	4		X			X
828	Nuttall oak	*Quercus*	*nuttallii*	28	4	X				X
829	Mexican blue oak	*Quercus*	*oblongifolia*	48	4				R	
830	pin oak	*Quercus*	*palustris*	28	4	X	X			X
831	willow oak	*Quercus*	*phellos*	28	4	X	X			X
832	chestnut oak	*Quercus*	*prinus*	27	4	X	X			X

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
833	northern red oak	*Quercus*	*rubra*	26	4	X	X			X
834	Shumard oak	*Quercus*	*shumardii*	26	4	X	X			X
835	post oak	*Quercus*	*stellata*	27	4	X	X			X
836	Delta post oak	*Quercus*	*stellata var. mississippiensis*	27	4					X
837	black oak	*Quercus*	*velutina*	28	4	X	X			X
838	live oak	*Quercus*	*virginiana*	27	4					X
839	interior live oak	*Quercus*	*wislizeni*	43	4			X		
840	dwarf post oak	*Quercus*	*stellata var. margaretta*	27	4					
841	dwarf live oak	*Quercus*	*minima*	22	4					
842	bluejack oak	*Quercus*	*incana*	43	4					X
843	silverleaf oak	*Quercus*	*hypoleucoildes*	48	4				R	
844	Oglethorpe oak	*Quercus*	*oglethorpensis*	27	4					X
845	dwarf chinkapin oak	*Quercus*	*prinoides*	43	4	X				
850	oak — evergreen	*Quercus*	*spp.*	48	4				R	
899	scrub oak	*Quercus*	*spp.*	42East,47West	4					X
901	black locust	*Robinia*	*pseudoacacia*	42East,47West	4	X	X	X		X
902	New Mexico locust	*Robinia*	*neomexicana*	48	4			X	R	
911	palmetto spp.	*Sabal*	*spp.*	41East,47West	3					X
919	western soapberry	*Sapindus*	*drummondii*	43	4	X				
920	willow	*Salix*	*spp.*	48	3		X	X		X
921	peachleaf willow	*Salix*	*amygdaloides*	43	3	X				
922	black willow	*Salix*	*nigra*	41	3	X	X			
927	white willow	*Salix*	*alba*	41	3	X				
931	sassafras	*Sassafras*	*albidum*	41	3	X	X			X
935	American mountain-ash	*Sorbus*	*americana*	43	4	X	X			X
936	European mountain-ash	*Sorbus*	*aucuparia*	43	4		X			
950	basswood spp.	*Tilia*	*spp.*	38	3		X			X
951	American basswood	*Tilia*	*americana*	38	3	X	X			X
952	white basswood	*Tilia*	*heterophylla*	38	3	X	X			X
953	Carolina basswood	*Tilia*	*americana var. caroliniana*	38	3					X
970	elm spp.	*Ulmus*	*spp.*	41	3		X			
971	winged elm	*Ulmus*	*alata*	41	4	X	X			X
972	American elm	*Ulmus*	*americana*	41	3	X	X			X
973	cedar elm	*Ulmus*	*crassifolia*	41	3					X
974	Siberian elm	*Ulmus*	*pumila*	41	3	X				X
975	slippery elm	*Ulmus*	*rubra*	41	3	X	X			X
976	September elm	*Ulmus*	*serotina*	41	3					X
977	rock elm	*Ulmus*	*thomasii*	42	4	X	X			X
981	California-laurel	*Umbellularia*	*californica*	43	4			X		
989	mangrove	*Rhizophora*	*mangle*	43	4					
990	tesota, Arizona-ironwood	*Olneya*	*tesota*	43East,48West	4			X	R	
991	saltcedar	*Tamarix*	*spp.*	41East,47West	3					

SPP	Common name	Genus	Species	SPGRPCD	MAJGRP	Species occurrence by FIA unit				
						NC	NE	PNW	RM	SO
992	melaleuca	*Melaleuca*	*quinquenervia*	41East,47West	3					X
993	chinaberry	*Melia*	*azedarach*	43	4					X
994	Chinese tallowtree	*Sapium*	*sebiferum*	43	4					X
995	tung-oil-tree	*Aleurites*	*fordii*	43	4					X
996	smoketree	*Cotinus*	*obovatus*	43	4	X				X
997	Russian-olive	*Elaeagnus*	*angustifolia*	43	3	X				
999	other, unknown	*UNKNOWN*	*UNKNOWN*	43East,47West	3	X	X	X	X	X

TREE SPECIES GROUP CODES

Species Group Name	Code
Softwood species groups	
Eastern softwood species groups	
Longleaf and slash pines	1
Loblolly and shortleaf pines	2
Other yellow pines	3
Eastern white and red pines	4
Jack pine	5
Spruce and balsam fir	6
Eastern hemlock	7
Cypress	8
Other eastern softwoods	9
Western softwood species groups	
Douglas-fir	10
Ponderosa and Jeffrey pines	11
True fir	12
Western hemlock	13
Sugar pine	14
Western white pine	15
Redwood	16
Sitka spruce	17
Engelmann and other spruces	18
Western larch	19
Incense-cedar	20
Lodgepole pine	21
Western redcedar	22
Western woodland softwoods	23
Other western softwoods	24
Hardwood species groups	
Eastern hardwood species groups	
Select white oaks	25
Select red oaks	26
Other white oaks	27
Other red oaks	28
Hickory	29
Yellow birch	30
Hard maple	31